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Title of Thesis:

The factors influencing public servants' ICT
adoption in e-Government of Cambodia

Applicability of technology adoption models

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Abstract

The Royal Government of Cambodia (RGC) has integrated ICT into public servants' work processes through e-Government implementation. However, public servants face challenges mainly related to limited knowledge, inadequate ICT infrastructure, and insufficient use of ICT tools, which hinder effective adoption of ICT. Various technology adoption models have been used to examine the antecedents of user behavior and the actual use of technology in information systems to investigate the factors influencing ICT adoption. However, previous models have shown limitations in fully capturing the dynamics of effective technology adoption. To address this gap, the present study adopted the Unified Theory of Acceptance and Use of Technology (UTAUT) to examine the influence of key adoption factors on both behavioral intention and actual ICT usage. A quantitative study used 292 samples from the Ministry of Environment, Cambodia, with regression techniques for data analysis. The finding shows that UTAUT model could explain 69.43% of the variance in model explanation. This research found that performance expectancy and social influenced significantly influence behavioral intention, while facilitating condition influenced actual ICT usage. In contrast, effort expectancy did not influence behavioral intention, and there were no significant differences across age and gender groups, moderating its independence and dependence on the model. Our result has provided practical implications for enhancing ICT adoption by investing in ICT infrastructure and government support, strengthening the capacity of public servants through targeted training, and reinforcing ICT leadership and governance.

Keywords: ICT adoption, Unified Theory of Acceptance and Use of Technology, UTUAT, Cambodia, e-Government.

Table of Contents

Acknowledgement.....	vi
List of Table	vii
List of Figure.....	viii
List of Abbreviations	ix
Chapter 1: Introduction.....	1
1.1. Introduction.....	1
1.2. Background of Study	1
1.3. The Problem Statement	4
1.4. Research Objectives and Questions	8
1.5. Research Methodology	9
1.6. Research Scope	10
1.7. Significance of Study	11
1.8. Definition of Key Terms.....	11
1.9. Organization of Thesis Outline	12
1.10. Conclusion	13
Chapter 2: Situation of e-Government in Cambodia	14
2.1. Introduction.....	14
2.2. Electronic Government Definition	14
2.3. The Evolution of e-Government in Cambodia	15
2.4. The Current Status of e-Government in Cambodia.....	16
2.5. ICT Infrastructure and its Challenges in the Public Sector	18
2.6. The Low Level of GovTech Maturity Index (GTMI)	19
2.7. The Current Cambodia e-Government Development	20
2.8. ICT Skill Challenges and the ICT skill Demand in the Public Sector	21
2.9. Current Digital Adoption in Cambodia	24
2.9.1. Digital Adoption of Cambodia in 2024.....	24
2.9.2. Digital Government Adoption in the Public Sector.....	25
2.10. Conclusion	25
Chapter 3: Literature Review	27
3.1. Introduction.....	27
3.2. The ICT System Implementation in Organization	27
3.2.1. ICT Implementation and its Processes.....	27
3.2.2. ICT Adoption Concept in the Study	29

3.2.3. ICT Adoption Processes Concept and the Stage Defined.....	29
3.2.4. Individual Adoption as the Sub-Process of Diffusion	30
3.3. User Acceptance of Technology in the UTAUT Model.	31
3.4. Why Was the UTAUT Model Selected in this Study?.....	32
3.4.1. An Overview of Models (TAM, TAM2 and DOI).....	32
3.4.2. Shortcomings of TAM, TAM2 and DOI in Previous Studies	37
3.5. The UTAUT Model Section as Model Base in this Study.	41
3.5.1. Performance Expectancy and its Influence on Behavioral Intention...	42
3.5.2. Effort Expectancy and its Influence on Behavioral Intention	43
3.5.3. Social Influence and its Influence on Behavioral Intention	44
3.5.4. Facilitating Condition and its Influence on User Behavior.....	45
3.5.5. Behavioral Intention and its Influence on the User Behavior	45
3.5.6. Moderator	45
3.6. Research Gap in this Study.....	46
3.7. Conclusion	47
Chapter 4: Research Methodology	49
4.1. Introduction.....	49
4.2. Research Design.....	49
4.3. Research Philosophy	51
4.4. Conceptual Framework and Hypothesis Development	51
4.5. Population	58
4.6. Data Collection	59
4.6.1. Question Validation and Additional Item Development Processes.....	59
4.6.2. Pilot Study	62
4.6.3. Survey Instrument.....	63
4.6.4. Research Sampling	64
4.7. Ethical Considerations.....	65
4.8. Variable Coding	66
4.8.1. Demographic Information Coding.....	66
4.8.2. Coding of Dependent and Independent Variables	66
4.9. Data Analysis Approach.....	67
4.9.1. Data Analysis Processes.....	67
4.9.2. Multiple Regression Analysis.....	67

4.9.3. Logistic Regression Analysis	68
4.9.4. Moderating Analysis.....	68
4.10. Conclusion	69
Chapter 5: Research Finding.....	70
5.1. Introduction.....	70
5.2. Descriptive Results.....	70
5.3. Checking Assumptions	78
5.3.1. Cook’s Distance.....	78
5.3.2. The Assumption of KMO, Bartlett's Test for Factor Analysis	79
5.3.3. Factor Analysis	80
5.3.4. The Analysis of Reliability and Internal Consistency	83
5.3.5. Normal Distribution Test.	85
5.3.6. Variance Inflation Factor (VIF).....	85
5.3.7. Matrix Correlation Analysis.....	86
5.3.8. Heteroskedasticity Check.....	88
5.3.9. Regression Specification Error Test (RESET Test)	89
5.4. Regression Analysis	90
5.5. Logistic Regression	92
5.6. Moderating Analysis	93
5.7. Conclusion	97
Chapter 6: Discussion	100
6.1. Introduction.....	100
6.2. Discussion based on Hypothesis	101
6.3. Conclusion	112
Chapter 7: Conclusion and Recommendation.....	113
7.1. Introduction.....	113
7.2. Conclusion	113
7.3. Research Contribution	114
7.3.1. Empirical Contribution	114
7.3.2. Theoretical Contribution	115
7.4. Policy Recommendations	115
7.4.1. Enhancing the ICT Usage and Training Program	116
7.4.2. Enhancing Leadership in ICT Management.....	117

7.4.3.Improving and Increasing the ICT Tools and ICT Support	117
7.5.Limitation of the Study.....	118
7.6. Future Research,.....	119
Reference	121
Appendix A	135
Appendix B	136
Appendix C	138
Appendix D	139
Appendix E	142
Appendix F.....	143
Appendix G	144

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List of Table

Table 2.1. The Evolution of e-Government in Cambodia.....	15
Table 4.1. Piloting Study Process	63
Table 5.1. Demographic Information.....	71
Table 5.2. KMO and Bartlett’s Test	80
Table 5.3. Factor Rotation.....	81
Table 5.4. Reliability Test Results	84
Table 5.5. Multicollinearity Check	86
Table 5.6. Correlation Matrix.....	87
Table 5.7. The Model Summary of Regression Standardize Prediction....	89
Table 5.8. Reset Test Results.....	90
Table 5.9. Parameter Estimate with Robust Standard Error.....	91
Table 5.10. Logistic Result	93
Table 5.11. Omnibus Tests of Model Coefficients	93
Table 5.12. Classification.....	93
Table 5.13. Moderation Analysis of Age and Gender.....	98
Table 6.1. Summary of Hypotheses in this Study	111

List of Figure

Figure 2.1. Status of Digital Government of Cambodia.....	17
Figure 2.2. GovTech Maturity Index between Cambodia and ASEAN	19
Figure 2.3. EGDI between Cambodia and ASEAN in 2024.....	21
Figure 2.4. Individual ICT Skills	22
Figure 2.5. Technology and Digital Programs for Higher Education	23
Figure 2.6. Cambodia Digital Adoption Index.....	25
Figure 3.1. Model of ICT System Implementation	28
Figure 3.2. Processes of Technology Adoption.....	31
Figure 3.3. Basic Conceptual Framework for User Acceptance Models ..	32
Figure 3.4. UTAUT Model	33
Figure 3.5. Technology Acceptance Model	34
Figure 3.6. Extended Technology Acceptance Model (TAM2)	35
Figure 3.7. Previous Study’s Model of User Acceptance of GAIS.....	39
Figure 4.1. Research Design.	50
Figure 4.2. The UTAUT Model for ICT Adoption in Cambodia Context	52
Figure 4.3. The Whole Process of Item Validation and Development	61
Figure 5.1. The Type of ICT Use	73
Figure 5.2. Performance Expectancy	74
Figure 5.3. Effort Expectancy	75
Figure 5.4. Social Influence	76
Figure 5.5. Facilitating Condition	77
Figure 5.6. Behavioral Intention	78
Figure 5.7. ICT Type Used in the Job.....	78
Figure 5.8. Cook Distance Diagnostic.....	79
Figure 5.9. Normality Diagnostic of the Residuals.....	85
Figure 5.10. Result of this Research Study.....	99

List of Abbreviations

AI	Artificial Intelligence
ASEAN	Association of Southeast Asian Nations
BI	Behavioral Intention
CEI	Citizen Engagement Index
DAI	Digital Adoption Index
DEIA	Department of Environmental Impact Assessment
DIA	Department of Internal Audit
DIT	Diffusion of Innovation Theory
DOI	Diffusion of Innovation
EAS	E-Administrative System
EE	Effort Expectancy
EGDI	e-Government Development Index
ETF	Electronic Tax Filing
FC	Facilitating Condition
FMIS	Financial Management Information Systems
GAIS	Government Administration Information System
GAM	Government Adoption Model
GDAF	General Directorate of Administration and Finance
GDEKI	General Directorate of Environmental Knowledge and Information
GDLC	General Directorate of Local Communities
GTMI	The GovTech Maturity Index
GS	General Secretariat
GTEI	GovTech Enablers Index
HCI	Human Capital Index
HR	Human Resource
HRMIS	Human Resource Management Information System
ICT	Information and Communications Technology
ICTD	ICT Development
IDT	Innovation of Diffusion Theory
IS	Information System
ISTD	Income and Sales Tax Department
IT	Information Technology
ITU	International Telecommunication Union
KMO	Kaiser-Meyer-Olkin

LM	Lagrange Multiplier
LMC	Least Medium-Sized Country
MIS	Management Information System
MM	Motivation Model
MoE	Ministry of Environment
MPCU	Model of PC Utilization
MPTC	Ministry of Posts and Telecommunications
NiDA	National Information Communications Technology Development Authority
NIPTICT	National Institute of Posts, Telecommunications, Information, and Communication Technology
NRI	Network Readiness Index.
OLS	Ordinary Least Squares
OSI	Online Service Index
OWSO	One Window Service Office
PE	Performance expectancy
PSDI	Public Service Delivery Index
RGC	Royal Government of Cambodia
SARMIS	State Asset Register Management Information System
SCT	Social Cognitive Theory
SDG	Sustainable Development Goals
SI	Social Influence
SN	Social Norms
SPSS	Statistical Package for the Social Sciences
STEM	Science, Technology, Engineering, and Mathematics
TAM	Technology Acceptance Model
TRA	Theory of Reasoned Action
TPB	Theory of Planned Behavior
TII	Telecommunications Infrastructure Index
TRA	Theory of Reasoned Action
UTAUT	Unified Theory of Acceptance and Use of Technology

Chapter 1: Introduction

1.1. Introduction

Chapter 1 highlights the background of the study in section 1.2. Following the next section, this chapter provides the problem statements in section 1.3, which explains the main problems of the thesis. Based on the problem statement, the chapter also defines the research questions and research objectives in section 1.4. This chapter also briefly presents the methodology of this research in section 1.5 and defines the scope of the research in section 1.6. The chapter provides the study's significance in section 1.7. This chapter also highlights some of the key terms in section 1.8. Consequently, section 1.9 highlights the thesis structure by briefly summarizing each chapter and the chapter conclusion in the section 1.10 in the thesis.

1.2. Background of Study

Over the last few decades, the growth of ICT has significantly impacted how local, state, and national governments function by providing organizations with new ways to improve workplace learning, working interaction, and collaboration (Andriessen, 2003) and (Gupta et al., 2008). Recently, ICTs is used to integrated with various stakeholders¹ in government and classified into government to business (G2B), government to employees (G2E), government to government organizations (G2G), and citizen to citizen (C2C) (Carter & Belanger, 2004; Carter & Bélanger, 2005; Edmiston, 2003; Sipior & Ward, 2005). These interactions with stakeholders are known as e-Government. There are different dimensions of e-Government, including public administration and social, technical, economic, and political aspects (Shareef et al., 2011). ICT has become an important mechanism to implement e-Government. It has become more common for all government agencies to provide online services. Using ICT in the government in G2E² is considered an essential government implementation process in support of working tasks for public servants, which helps the government use technology interactively (Kirat Rai et al., 2020a; Tapscatt & Agnew, 2000). An e-Government strategy is to

¹ The e-Government classification can be found at section 2.2 in Chapter 2 in detail.

² Refer to the online interaction tools between a government and its employees

modernize the public sector by minimizing costs and layers of organizational processes, identifying and developing organizational structure, and determining how to interact with citizens and businesses (Bwalya, 2009). Thus, e-Government develop strategic connections between public sector organizations and their departments and communication between government levels. This connection and communication improves the cooperation between them through facilitating the provision and implementation of government strategies, transactions, and policies, as well as better use and running of government processes, information, and resources (Heeks, 2001). To improve organizational connection and cooperation, ICT adoption is widely promoted among organizations in the public sector to ensure that public servants adopt ICT in organizational administration. Public servants have become more aware of the potential of ICT adoption in e-Government and adopt ICT to enhance government organizations' performance (West, 2005) since ICT adoption has become an important part of e-Government implementation. The success of e-Government implementation results in significant benefits such as improved efficiencies, greater access to services, greater accountability, transparency, and citizen empowerment (Lam, 2005; Tung & Rieck, 2005).

However, some uncertainty exists in the literature concerning ICT adoption. ICT adoption in e-Government is not simple and cannot be completed in a short amount of time; rather, it calls for an integrative architecture framework approach to online government services and information (Bwalya, 2009); otherwise, e-Government transformations remain at the first stage, and have difficulties in moving for full e-Government development when the adoption of ICT remains problematic in the organizations. Most developing countries have experienced numerous e-Government system failures. If any stakeholder (public servants) does not accept or adopt ICT in the e-Government, some e-Government projects will not succeed. Thus, the primary requirement for the success of any IT project in e-Government is user adoption (Heeks, 2003). The most recent challenge governments have faced is the user adoption of ICT in the public sector, which must be addressed while technology management to ensure how to promote ICT adoption

among users is considered a part of the e-Government implementation processes (Sharma et al., 2014; Waheduzzaman & Miah, 2015).

However, ICT adoption in the public sector has become a challenge in implementing e-Government. The literature review revealed that there are some barriers of ICT adoption, such as IT infrastructure issues including insufficient existing internal systems (Layne & Lee, 2001) and lack of bandwidth (Angelopoulos et al., 2010), fragmented digital divide (Dwivedi & Irani, 2009; Helbig et al., 2009), unavailability and compatibility of software and systems (Ebrahim & Irani, 2005), lack of integration across government systems (Moon, 2002), limited knowledge related to interoperability with IT skills (Ho, 2002), security and privacy issues (Lambrinoudakis et al., 2003; Zeichner, 2001), lack of government support, ambiguous ICT management and knowledge management (Lenk & Traunmuller, 2000; Rabee & Reffat, 2006), the insufficient legal framework (Kim et al., 2009) and government policies in the organizational operation (Angelopoulos et al., 2010; Zhang et al., 2005).

Similarly, Cambodia's e-Government also faces challenges in implementation. e-Government in Cambodia is still in the early stages of development. At this stage, the development of online service delivery in terms of cost and convenience is the focus of digital system development and use. However, various studies have found that the challenges of e-Government include infrastructure (Savuth & Sothea, 2023), regulation, knowledge (Mono, 2021; Sar, 2023), IT skills (Corrad & Tungjan, 2019; Sang, Lee, & Jongsu, 2009), technological, institutional and social determinants (Wijers, 2010). These issues also emphasized by the RGC (2022)'s report which are mostly face with organizational and technical factors

All these issues negatively impact e-Government development, especially ICT adoption. All these previous studies highlight the issues of technical factors, e-Government systems, organizational factors and IT skills that hinder e-Government development. In fact, e-Government development also includes social and human factors that are related to users' ICT adoption (Ndou, 2004). It becomes an important contribution to e-Government implementation since e-Government success is based on the human factor of 80% while 20% is only for the technology base.

To support successful e-Government development, it is first necessary to change public servants' behavior toward ICT adoption, which is often ignored in wider digital transformation strategies (World Bank Group, 2018). Thus, the RGC (2015) stressed the importance of influencing public servants' ICT adoption within the public sector. In this context, promoting the adoption of ICT is not only a matter of technological availability and technical factors but also of fostering public servants' behavior toward ICT adoption in the stages of e-Government development.

However, there is no recent study on the impact of these issues on the public servants' ICT adoption in the Cambodia context except for Sang et al. (2010) and his colleagues, who conducted a study to assess the public servants' ICT adoption among public servants by focusing on the perceived ease of use and usefulness without considering other external factors (i.e., facilitating conditions, and social factors) which could be affecting the public servants' ICT adoption which were not included into this previous study.

Thus, this study was conducted to investigate ICT adoption among public servants, particularly within the G2E framework, to examine the factors influencing public servants' ICT adoption and to shed light to confirm the main barriers covering all factors, including the social factors and facilitating condition factors and other external factors that make the public servants face difficulties as the e-Government in Cambodia have just implemented recently due to the government public administration reform.

1.3. The Problem Statement

The ministries have challenges due to the adoption of ICT, which leads to a lack of ICT personnel in terms of quality and quantity in the public sectors. RGC has difficulties implementing e-Government. In Cambodia's e-Government development, Cambodia faces challenges affecting the public servants' ICT adoption, including fragmented ICT infrastructure, insufficient ICT usage, low ICT knowledge, institutional discouragement, and insufficient regulatory frameworks and policies (Mono, 2021; RGC, 2022).

Firstly, Cambodia's ICT and digital infrastructure remain fragmented, and there is insufficient ICT usage in the public sector (ElMassah & Mohieldin, 2020). These underdevelopment and unimprovement are mainly due to insufficient financial investment in building infrastructure and increasing ICT usage (UNDP, 2021). Some senior officials³ also confirm the low ICT infrastructure development due to insufficient financial constraints. The infrastructure remains fragmented, and there is a lack of clear coordination among ministries. Government departments have redundant infrastructure development, inconsistent data communication channels, duplicated efforts, inefficient use of software, and insufficient ICT usage in their work at some ministries. These issues collectively hinder data integration across agencies and increase technology implementation costs. Another issue of ICT infrastructure connectivity is that some ministries lack a backbone network to receive the ICT services and low coverage and bandwidth of the national network operated by the state-owned organization and administration network (KOICA, 2020). These show that government agencies did not have enough bandwidth to support the adoption of ICT by public employees in their daily work. All barriers to ICT infrastructure and lack of ICT usage will make public servants unable to access ICT, and it also affects ICT adoption in the public sector. These issues will affect their working performance since adopting ICT strengthens public servants' innovation and capacity.

Secondly, the complexity of ICT use becomes an obstacle for public servants to adopt ICT since Cambodian public servants have limitations in understanding ICT functions or ICT usage (Apriliyanti et al., 2021). These issues limit the public servants' knowledge of how to access the new ICT concepts and existing ICT use in the organization. Thus, these issues make public servants struggle to do their working tasks. Furthermore, some aging public servants cannot adopt ICT, and most face cutting-edge information technology and ICT adoption

³ The interview from the Senior officer, IT staff, project manager, and department staff in the Ministry of Health, Ministry of Public Works and Transport, and a lecturer at the Royal University of Phnom Penh conducted as an FDG interview in 2019 (see Apriliyanti et al., 2021)

challenges (Mono, 2021). Furthermore, half of Cambodia's government staff have basic knowledge of ICT use (Kevreaksmey et al., 2015).

Thirdly, the public servants have limited ICT knowledge. Thus, the issues of ICT knowledge have constrained the government's implementation. At the same time, the public servants in Indonesia, Thailand, and Brunei are familiar with ICT and possess adequate ICT knowledge and skills. Singapore and Brunei do not have any deal with public servant's ICT knowledge and skills in public sectors (Apriliyanti et al., 2021).

Fourthly, there is insufficient encouragement to improve the public servants' knowledge to keep pace with technological advancements (RGC, 2024; Yang & Sovann, 2019). Individuals must pay for their ICT education if they wish to improve their digital competencies (RGC, 2022). The absence of strong motivational mechanisms and support from senior management further discourages ICT adoption among public servants (Apriliyanti et al., 2021).

Lastly, there are not enough regulations and guidelines for the public servants to adopt among ministries and to implement some guidelines for technology adoption in the e-Government system (RGC, 2022). Regulations and laws must support e-Government development. Without a legal basis, the adoption of e-Government is threatened (Esteves & Joseph, 2008). Even though RGC (2022) has been implementing e-Government policies, regulations do not specify the strategies in detail to improve ICT adoption among civil servants. The absence of laws and regulations contributes to the government's inability to sustain the prioritization and implementation of e-Government programs.

These issues above cause to have an impact on public servants' behavior in using ICT (RGC, 2022; United Nation, 2022). The public servant's ICT adoption depends on their behavior. Otherwise, these issues will interrupt their initial adoption, influencing their decision (Bhattacharjee et al., 2018; Oliver, 1980). Thus, the RGC (2015) stressed the importance of influencing the behavior of public officials to improve ICT adoption within the public sector. Nevertheless, it is noted that public servants still use traditional work rather than IT work, even though RGC

has reformed public administration by integrating ICT. Moreover, the willingness and their behavior of public servants to adopt ICT remains unchanged.

RGC has strived to improve the ICT infrastructure, ICT training support, and digital literacy programs, as well as promote research and innovation among public servants for ministries .RGC (2022) has also addressed these issues by setting and implementing the strategies in the first Pentagon⁴ to improve human capacity development, and various ICT and digital initiatives, including internal cloud and systems and other e-Government platforms, are introduced. In addition, RGC has issued a range of legal frameworks, guidelines, and regulations to advance the ICT sector in alignment with international standards and to strengthen both the public and private sectors.

However, ICT adoption among public servants remains a significant challenge and hinders progress, contributing to ongoing uncertainty. Lacking ICT use, ICT infrastructure, and limited knowledge impact the public servants' ICT adoption (RGC, 2022; United Nation, 2022). The public servants remain difficult and reluctant to adopt ICT in their work. There is not yet known about the factors influencing their decision to adopt or not adopt ICT use in their working processes. These challenges of ICT adoption in the e-Government will reduce the efficiency of public administration, represent an obstacle to promoting public service value for other stakeholders in e-Government, and reduce the public servant's adoption and effectiveness of e-Government implementation.

Cambodia is not the only case of ICT adoption challenges in the e-Government case. In fact, among developing countries adopting e-Government projects, only 15 percent could achieve fully functional e-Governments, and 85 percent failed partly and totally (Heeks, 2003). The e-Government failure in developing countries resulted from a low level of ICT adoption due to some reasons such as insufficient ICT infrastructure, lack of IT skills and the knowledge to catch up with advantage technology (Apleni & Smuts, 2020; Napitupulu, 2014). These

⁴ The first Pentagon strategy focused on human resource development. This also includes measures and plans to improve digital education, develop digital infrastructure, and promote science, technology, engineering, art, and mathematics (STEM) courses.

challenges make other countries in all group incomes lower the ICT adoption (United Nation, 2024) due to lack of awareness, inaccessibility, lack of confidentiality, less trust, and inadequate infrastructure. Poor delivery service and social and cultural issues are thought to be crucial to the adoption process. Thus, most developing countries try to overcome the challenge of ICT adoption in e-Government by improving the ICT infrastructure, enhancing legal support, and capacity building to improve its adoption.

RCG also tries to address these challenges to improve the public servants' ICT adoption to improve the administration's efficiency and effectiveness and make the operation more functional, sustainable, and responsive, reducing the administrative bureaucracy, document procedure, costs, and time-consuming paperwork. Addressing these issues also provides a robust approach to better public administration (Mono, 2021).

Having seen the importance of ICT adoption in the public sector, G2E has become a significant part of the success of e-Government's implementation and public administration reform. Government policies have not focused on the G2E, the back office, or the interaction of the government between employees to ensure the improvement of internal organizational efficiency and effectiveness and to restructure internal government operations through ICT adoption in e-Government. Based on the current e-Government challenges and the acceptance of ICT adoption in the public sector, it is important to examine the factors that trigger the public servants to face challenges to adopt ICT and dig out why ICT adoption seems to progress slowly among the public servants in the public sector. So far, there is no assessment of factors that public servants' ICT adoption in Cambodia's e-Government to ensure that the government can maintain e-Government transformation in the public sector.

1.4. Research Objectives and Questions

Aimed to fill the gap in literature, this study investigates the ICT adoption in G2E. Thus, the research consists of three main research objectives in this research as follows:

1. To identify the factors that influence the ICT adoption among public servants.

2. To confirm how the identified factors influence the ICT adoption among public servants.
3. To consider how to promote the ICT adoption based on the identified factors in the UTAUT model

The four research questions are conducted to examine factors influenced by public servants' ICT adoption in e-Government as follows:

1. To what extent do performance expectancy, effort expectancy, and social influence significantly influence behavioral intention in ICT adoption?
2. To what extent do facilitating condition and behavioral intention influence the actual use of ICT?
3. To what extent do age and gender moderate the influence of performance expectancy, effort expectancy, and social influence on behavioral intention?
4. To what extent does age moderate the influence of facilitating condition on the actual use of ICT?

1.5. Research Methodology

This research used the technology adoption (UTAUT) model to examine the factors influencing public servants' ICT adoption in e-Government in G2E. The study used an exploratory sequential design to validate and develop items and adopt items from Venkatesh et al., (2003). However, this research mainly focused on quantitative research to examine the causal relationship between independent latent variables, including performance expectancy, effort expectancy, social influence, and behavioral intention. Other latent variables, such as facilitation condition and behavioral intention, influence the actual use of ICT in the job. Thus, Statistical Package for the Social Sciences (SPSS) analysis was used to examine the degree of influence of each independent variable (e.g., performance expectancy, effort expectancy, and social influence) on behavioral intention; logistic regression was also employed to examine the facilitating condition influencing the actual use of ICT. A hypothesis was constructed and interpreted in this research to test its relationship. This study used cross-sectional data to measure public servants'

behavior toward ICT adoption. In this sample section, the study used a convenient sampling method to select the randomized group of samples to ensure that all sample selections were population representative. Consequently, 292 samples were obtained in the research among MoE.

1.6. Research Scope

The MoE is one of the ministries that implements e-Government policies. However, the ministry faces challenges in terms of ICT use and ICT tools. The MoE lacks IT human capital. The high demand for public servants with enough knowledge has always been needed for each department under the ministry since the working tasks are processed digitally due to the government's digital policy and public administration reform. The demand for public servants to use ICT in their work process is high and the public servants working in the ministry face the limitation of knowledge and capacity to carry out and *catch up their work with ICT* advancement and public administration reform based on DGP 2022-2035. According to the MoE internal report released by the General Directorate of Finance and Administration, the MoE's public servants have limited ICT skills and ICT knowledge. Public servants are reluctant to adopt internal applications such as the MoE admin and internal systems that have already been fully launched for use in the ministry. The traditional working environment remains heavily dependent on paper-based working conditions even though the MoE has implemented e-Government policies.

According to GDFA (2025), these limitations come from the ministry's lack of ICT infrastructure, knowledge limitation, ICT complexity and ICT usage for their working process in the tasks. The existing organization's operations remain low in inefficiencies, such as the MoE Amin, internal human resource (HR) systems, other ICT tool usage, and internal applications to serve their working processes due to a lack of willingness, inexperience in ICT use, and unclear ICT policy management, which includes ICT promotion and ICT benefit awareness. These barriers pose significant challenges to the effective adoption of ICT. On the other hand, the assessment of individual ICT adoption in the MoE has not yet been conducted to identify factors that make the institution remain unchanged for its improvement. Thus, there is a need for empirical investigation into the determinants of ICT

adoption among public servants, and there are no policies and regulations to assess public servants' ICT adoption. In addition, assessing an individual's ICT adoption is important to understand the current challenges of e-Government implementation. With the lack of verification of all the digital issues in the MoE, the outcome of the research study will provide policies to enhance technology integration, optimize working processes, and improve working productivity and efficiency.

1.7. Significance of Study

This study addresses the gap in assessing ICT adoption among public servants in MoE to respond to government policies. This research will provide critical, insightful policy development and support for ICT adoption in public administration as follows:

- For the Ministry of Posts and Telecommunications (MPTC), the result of this study will help its institutions to strengthen their support for the MoE and other ministries by promoting the ICT tool suitable for their public servants' jobs and improving their knowledge as well as ICT adoption to improve working processes in their job role and the e-Government implementation effectively and efficiently.
- The research will also serve as the basis and provide more excellent value for social and academic groups on technology adoption. This finding will also provide more insight into what factors influence public servants' ICT adoption in Cambodia's e-Government.
- This research will be the first study to contribute to filling the gap in the field IS literature review since there are no available studies conducted to investigate the public servants' ICT adoption in e-Government with UTAUT model application in the framework of the G2E in the Cambodian context.

1.8. Definition of Key Terms

The UTAUT model is defined as the model integrated from various models of technology adoption to investigate the individual technology adoption.

ICT adoption is define as the process by which individual users decide whether or not to incorporate ICT into their working processes according to Davis (1989), Venkatesh et al. (2003), and Rogers (1995)

Performance Expectancy is defined as “ The degree of expectation to which individuals believe that using a system will help them improve their job performance” (Venkatesh et al., 2003, p. 447)

Effort Expectancy is defined as “ the degree of ease associated with using the system” (Venkatesh et al., 2003, p. 451)

Social Influence is defined “ the degree of expectation to which an individual perceived that the important others believed he or she should use the new ICT system” (Venkatesh et al., 2003, p. 451)

Facilitating Conditions is defined as “the degree to which an individual believed that an organization and technical infrastructure support the use of systems” (Venkatesh et al., 2003, p. 454)

Behavioral Intention is defined as “ The level of expectation of individual intention to perform the decision based on IT use” (Venkatesh et al., 2003).

1.9. Organization of Thesis Outline

Six chapters can help readers understand the guidelines of this research study.

Chapter One reviews the background of the research and the research gap by confirming ICT adoption in the Cambodian context as the main study in this research study, problem statement, research question, research objective, research methodology, research scope, technical key term, and chapter conclusions.

Chapter Two reviews the definition of e-Government and the type of e-Government. The chapter also illustrates the evolution of Cambodia's e-Government and highlights the current infrastructure situation and its challenges in the public sector. Moreover, this chapter also scrutinizes the challenges of ICT skills and highlights government technology, e-Government development, and ICT adoption in e-Government.

Chapter Three reviews the ICT system implementation. Then, the adoption of ICT was defined based on the study context, the implementation of the ICT system in an organization, and the user acceptance of technology based on the UTAUT model. The chapter also illustrates why the UTAUT Model was selected as a model base in the study based on the shortcomings of Cambodia's previous study

in technology adoption and the strength of the UTAUT model. This chapter also presents the research gap.

Chapter Four presents some concepts of research philosophy, research framework, elaboration on the research design, development of questionnaire items, pilot study processes, sample selection, data collection, and analysis procedure.

Chapter Five presents the analysis of data with various tests such as preliminary regression analysis to check potential outliers, validity and Cronbach alpha, heteroscedasticity check, model specification tests, correlation matrix analysis, normality, and multicollinearity testing, and multiple regression and logistic regression was conducted to confirm the hypothesis and the relationship between independent variables and dependent variables.

Chapter Six provides a discussion with implications based on research questions and research hypotheses by discussing with the previous studies that have similar results. The chapter also provides implications based on the research result

Chapter Seven concludes the study by restating key points and restating the research problem. It outlines the research approach, including the application of UTAUT models, and summarizes the findings based on the tested hypotheses. The chapter also highlights the research and theoretical contributions, offers practical recommendations, discusses limitations, and suggests directions for future research.

1.10. Conclusion

This chapter highlights the background of the study to review some issues in the ICT adoption process in e-Government and the role of ICT adoption in e-Government development in international and national contexts. It also provides the reason why this study needs to be conducted. The chapter also identified the main problem statement by unveiling the challenges associated with ICT adoption, including fragmented ICT infrastructure, insufficient ICT use, low ICT knowledge, institutional discouragement, and insufficient regulatory frameworks and policies. Then, this chapter highlights the study's research questions, objectives, and significance. This chapter provides information on ICT development and ICT adoption in e-Government in the Cambodian context.

Chapter 2: Situation of e-Government in Cambodia

2.1. Introduction

This chapter starts with defining the classified forms of e-Government in section 2.2. It then describes the historical development of e-Government in section 2.3. Section 2.4 presents the current status of e-Government, followed by a discussion of infrastructure challenges in the public sector in section 2.4.1. Government Technology (GovTech) is examined in section 2.5, while section 2.6 highlights e-Government developments. In addition, section 2.7 addresses the shortage of ICT skills and governmental measures. Finally, section 2.8 provides an assessment of the current level of adoption of ICT in e-Government.

2.2. Electronic Government Definition

e-Government is the process of enhancing access to official government information and delivering services to individuals, businesses, and other government entities through ICT and web-based technologies; however, the definition of e-Government differs from country to country and from institution to institution as e-Government has been widely used across the globe. The e-Government definition was defined differently. Gil-Garcia and Martinez-Moyano (2007) define e-Government as applying ICT within governmental settings. According to United Nation (2022), e-Government is the process of enhancing access to official government information and delivering services to individuals, businesses, and other government entities through ICT and web-based technologies. There are different types of e-Government delivering government services, including the Government to Employees (G2E), Government to Business (G2B), Government to Citizen (G2C), and Government to Government (G2G). Thus, each type of e-Government is defined as follows:

- G2E is a form of online management system for the personnel of a public institution. Studies have emphasized that one side of the service is situated to facilitate the institution's service, while the other side facilitates communication on the side of the employees.(Carter & Bélanger, 2005).
- G2G is an e-Government that focuses on information exchange within the country and internationally (Mansoori et al., 2018).

- G2C is an online delivery provision, an electronic exchange of information for citizens, such as libraries, bill payments, education, health services, and applications for permits or licenses.
- G2C is the online provision of information, goods, and services from the government to the private sector to increase communication (Evans & Yen, 2006).

2.3. The Evolution of e-Government in Cambodia

Table 2.1. *The evolution of e-Government in Cambodia*

Year	e-Government evolution.
2000	The Office of the Council of Ministers established the National Authority for Information and Communication Technology Development (NiDA) as a national information infrastructure network, starting from connecting ministries and institutions and then expanded to nine priority provinces, with three data centers and three digital information systems.
2013	NiDA ⁵ was placed under the MPTC. All ministries and institutions still use ICT infrastructure for government networking. RGC also strives to develop more ICT and regulation to ensure collaboration and e-Government implementation is undertaken consistently and efficiently based on the best international practices.
2014	Communication Technology Master Plan of Cambodia 2020 was established to promote ICT, human resource development, digital risk prevention, and internet connectivity through systems.
2015	Law on Telecommunications was established to address the following issues such as the use of infrastructure and networks to deliver telecommunication services that are efficient, safe, reliable, and affordable; the encouragement of the private sector to contribute to the growth of this industry and the creation of fair competition and consumer protection.
2016	RCG approved the Development Policy for ICT 2020, which sets out measures and goals to strengthen the basis of the development of ICT sectors, digital security, to promote industrial development, and the use of ICT. The results of implementing this Cambodia DGP 2022-2035 policy are still limited, and the country has not achieved its goals due to various challenges, such as financial resources and human capital.
2020	There were plans to develop digital infrastructure and information systems, such as setting up three data centers and service rooms in 20 ministries and institutions. Ministries and institutions set up internal

⁵ NiDA was established to improve the national information and communication resources to the outside world and to promote the development and use of ICT in the government to improve revenue collection and the image of the government through an online network linking 27 government agencies and other departments in 76 municipalities and seven districts (see Wijers, 2010).

	networks and internet connections provided by the MPTC or companies but did not connect to all relevant departments or units.
Present	According to the Cambodia Digital Economy and Society Policy (CDESP) 2021-2035, building a digital government is a necessary pillar and the first step to accelerate the realization of digital citizens and businesses and ensuring high successes in establishing the digital economy and society. RGC has implemented the Digital Government Policy (DGP) (2022-2035) to improve e-Governments and digital transformation and this policy sets its four objectives to improve digital government infrastructure, build digital governance, public services, and innovation capacity, and promote the public and private sectors with ten strategies consisting of 83 actions to reach its vision of "establishing digital government to improve the citizens' quality of life and build their trust through better public service provision".

Sources: Phu (2003) and RGC (2022)

2.4. The Current Status of e-Government in Cambodia

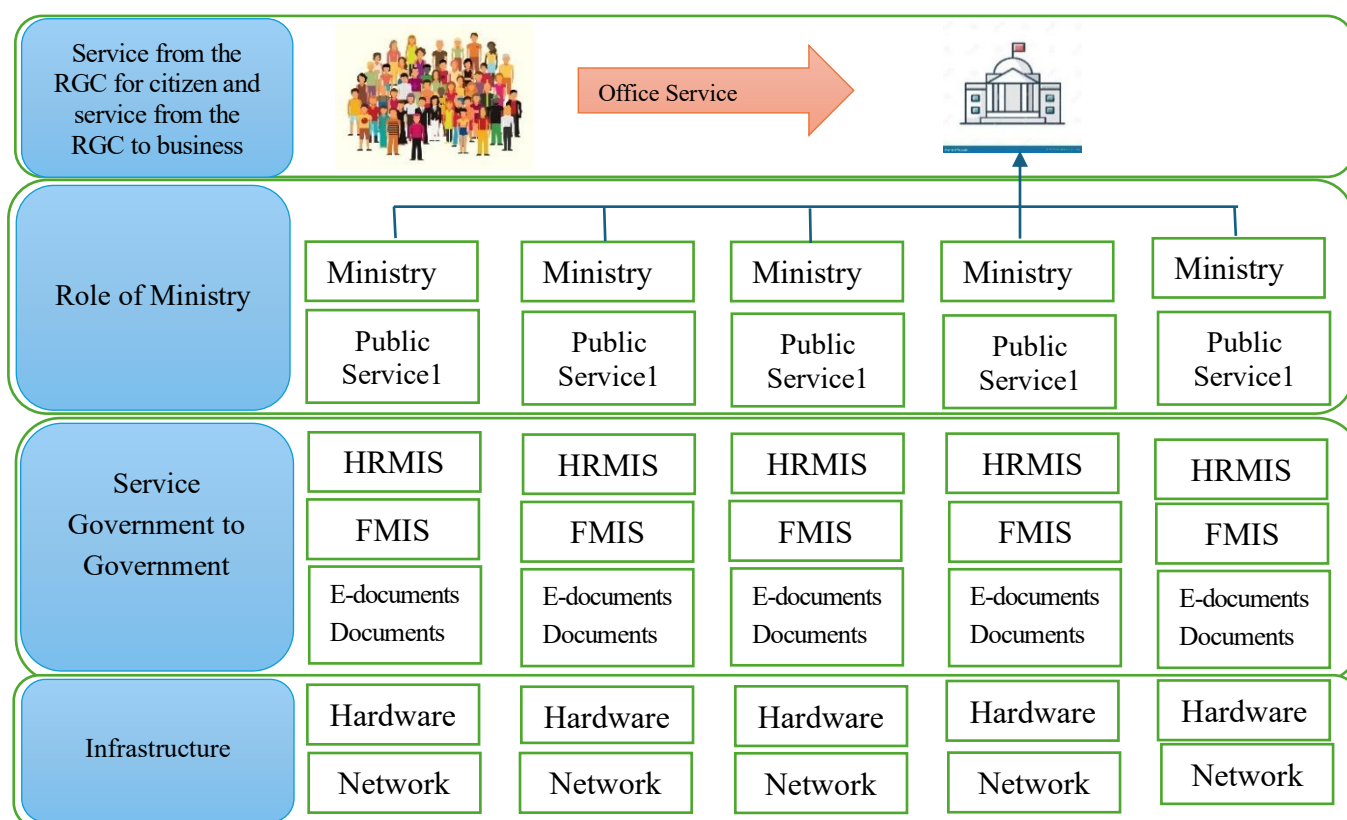
Regarding ICT development, Cambodia's ICT development (ICTD)⁶ has a lower value of 0.72.6 than the regional Association of Southeast Asian Nations (ASEAN) average (75.13) and the global average (World Bank, 2023, pp. 4-6). ICT development reflects the population's use of ICT for their daily life and the state's digital development. According to datareportal (2025), 10.8 million individuals were using the internet, which accounted for 60.7% of the total population in 2025, while 25.3 cellular mobile connections were active, accounting for 143% of the total population. Internet penetration will amount to 69.62% in 2025. According to Statista (2025), Cambodia's 4G network coverage is estimated to be 99.61% in 2025. For 3G network coverage, Cambodia is estimated to be 93.9% in 2025. Moreover, Cambodia's average broadband connection speed reached 17.76 kbits/s in 2025. In addition, private mobile companies also invested in 4-generation mobile. In addition, the export of ICT service per capital is estimated to be US\$24.70 in 2025.

The datareportal (2025)'s report also reveals that Cambodia's population uses mobile internet downloads with a medium speed of 29.37 Mbps and medium fixed internet downloads of 45.10 Mbps in 2025, which has increased by 3.7Mbps

⁶ A combination of important pillars such universal connectivity and meaningful connectivity pillars which each pillar consist of indicator (see World Bank, 2023).

in 2024⁷. In addition, the telecommunication infrastructure is not connected across the country. RGC has connected the backbone of fiber-optic capable networks 46000 km and conducted two submarine fiber-optic cable projects. The first fiber-optic submarine cable connects Thailand and Malaysia, and the second one connects Cambodia to 18 countries in Asia, Africa, and Europe (Asia, Africa, Europe 1 AAE-1). Regarding digital infrastructure development, Figure 2.1 shows that 3508 (77.54%) of public services were provided by the One Window Service Office (OWSO), while 10,60% of applicants applied directly, and 11,86% applied via online application services after downloading the online applications. There are 182 users of the Royal Government digital information system. Of these, 30.8% are public services provided by G4C, 9.5% by G2B, and 59% by G2G.

Figure 2.1. *Status of Digital Government of Cambodia*



Source: Ministry of Post and Telecommunications survey 2020, RGC

⁷The information can be found at datareportal. (2025). *Digital 2025: Cambodia*
<https://chatgpt.com/c/6842ab2b-16fc-800d-912f-0c791e22f045>

2.5. ICT Infrastructure and its Challenges in the Public Sector

The RGC has worked hard to turn the nation into a digital society by designing digital policy documents and legal frameworks to achieve digital transformation (RGC, 2021). Thus, MPTC has extended the connectivity infrastructure (e.g., internet and server) to all ministries by purchasing 16 more internet-private companies (RGC, 2022). RGC continues by noting that around 182 program systems were developed for 28 ministries and institutions, while 167 program systems were conducted and implemented. The infrastructure connectivity improved the technological backbone supporting public administration and effective service delivery through the National Data Center⁸. In ICT development, the legal framework and policies are the central keys, which consist of the strategies, goals, and activities to ensure the accomplishment of e-Government policy implementation and transformation.

However, the data storage and digital systems are kept apart in the initial phases (RGC, 2022) since current digitization in the ministries continues to focus on developing applications to improve work without considering long-term digital transformation. Each ministry has its own internal ICT or digital solutions, memory clouds, full and semi-automatic systems, and other e-Government platforms such as Financial Management Information Systems (FMIS) and Human Resource Management Information Systems (HRMIS) are introduced, the ministries and public institutions have been facing challenges in the development of the digital e-Government's internal factorial issues, such as the lack of infrastructure connectivity, application, responsible units for technology and data system and external factors such as the limit of application developer and digital security threats also curse the government's efforts (RGC, 2022). In addition, the programs are overlapping and redundant, and they face difficulties with the ownership code program system, data system ownership, vulnerability, and civil servants' lack of digital identity. There is still insufficient intra-institutional connectivity and a lack of common data storage for all ministries. Other organizations invest in their data

⁸ The National Data Center supports the governance and decision-making of ministries and institutions. For instance, some of the center's roles are to host and maintain the government's e-mail platform and website and manage content (see World Bank, 2018).

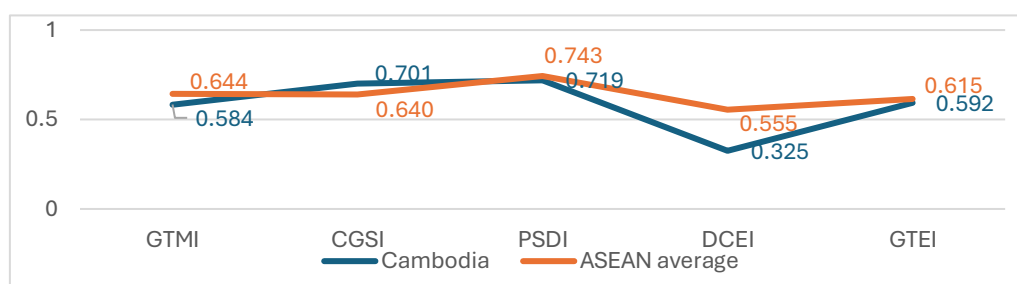
centers and store their data for private cloud services. Therefore, the scale integration of ICT applications is still challenging.

2.6. The Low Level of GovTech Maturity Index (GTMI)

According to the DGP 2022-35, the challenges are the insufficient existing systems' digital security protection, human capital in digital technology, and regular operations and maintenance. Thus, e-Government in Cambodia still lacks ICT, digital literacy, financial resources, and preparation (Mono, 2021). These challenges reflect the limitations of enabling and safeguarding institutions to support the Gov Tech⁹, a lack of citizen engagement and participation, and service delivery for citizens. GTMI was designed as a government technology initiative to measure maturity and assist practitioners in designing new digital transformation projects.

Figure 2.2 shows that Cambodia is placed at a low level of GovTech among ASEAN countries. It shows that Cambodia, among the GTMI¹⁰, is lower on average than the others of ASEAN's GTMI reported in 2024. GTMI's components, such as the Public Service Delivery Index (PSDI), Citizen Engagement Index (CEI), and GovTech Enablers Index (GTEI), are lower than the ASEAN average, except for the Core Government Systems Index (0.701) (Dener Cem, 2021).

Figure 2.2. GovTech Maturity Index between Cambodia and ASEAN



Source: Dener Cem (2021)

⁹ Refer to an all-government approach to modernizing the public sector that promotes simple, efficient, and transparent governance with citizens at the heart of the reforms. By strengthening citizen-centered services and citizen involvement and improving basic public administration, Gov Tech has excellent potential to deliver on the Digital Age promises (See Dener Cem, 2021, p2).

¹⁰ Refer to the most comprehensive measure of digital transformation in the public sector, and it focuses on supporting core government systems, enhancing service delivery, mainstreaming citizen engagement, and fostering Gov Tech enablers. All these components consist of 17 indicators for core government, nine for the Public Service Delivery Index, six for the Digital Citizen Engagement Index, and 16 for The Gov Tech Enablers Index.

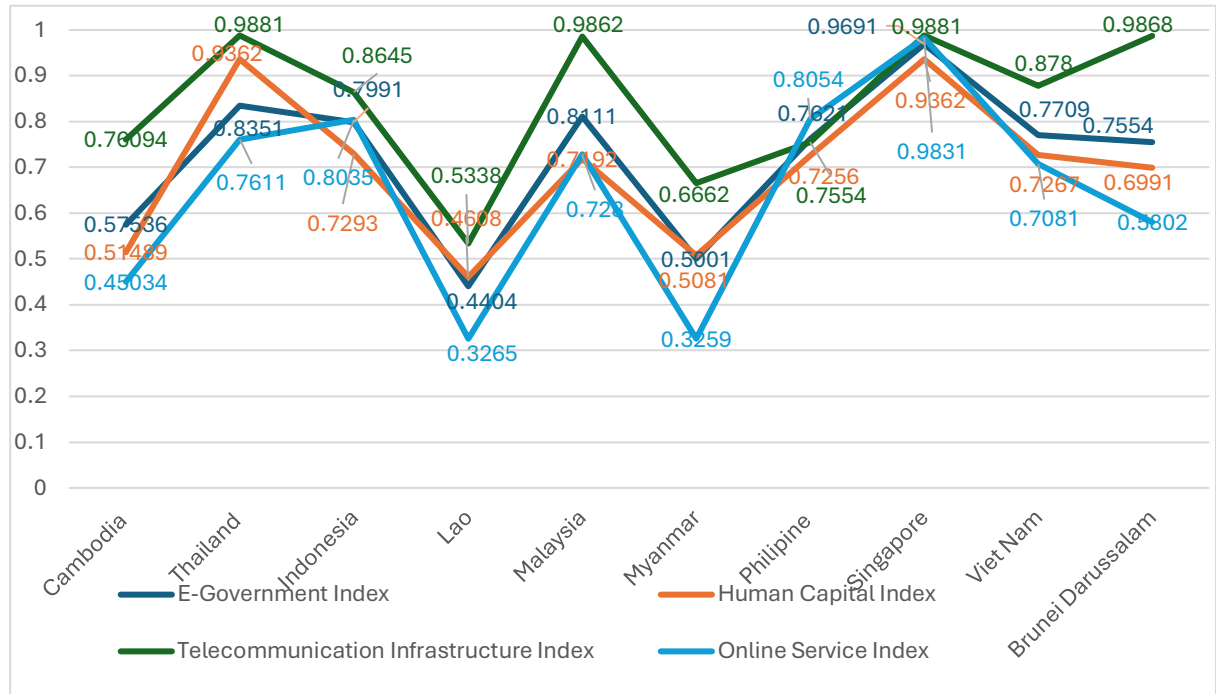
Regionally, countries that received a Grade A, including Singapore and Thailand, are at a high-Grade A level in Gov Tech. Compared to other countries, Cambodia's GTMI ranks seventh among ASEAN countries, while Laos and Myanmar have lagged behind ASEAN lately.

2.7. The Current Cambodia e-Government Development

The low level of GovTech and fragmented infrastructure indicates that Cambodia has a low e-Government development index and human capital in both private and public sectors in e-Government. According to United Nation (2024), Cambodia has been considered as a progressive e-Government development since 2022. Cambodia is still considered the least medium-sized country group (LMC) in the e-Government development index (EGDI) in 2024. The components of the Human Capital Index (HCI), Telecommunications Infrastructure Index (TII), and Online Service Index (OSI) were used to assess EGDI. When compared to other ASEAN countries, Cambodia has a notably lower EGDI of 0.5754, which consists of an HCI of 0.514, a TII of 0.7609, OSI of 0.4503, and a TII of 0.5605 which makes Cambodia rank seventh of ten countries in ASEAN in e-Government development (see the Figure 2.3). The low value of the index also put Cambodia's e-Government development in 120th place worldwide (United Nation, 2024).

However, Figure 2.3 shows that the main component of the EGDI value is HCI, which is the most important of the essential components for the successful implementation of e-Government. The United Nations e-Government survey also found that the HCI in 2024 was 0.514, which is lower than that in 2022, which is 0.5308. This HCI value also puts Cambodia far behind other ASEAN countries (7th out of 10). For the human capital index compared across ASEAN countries, Cambodia's HCI, as one of the four main components of EGDI, showed that the level of HCI decreased from 0.5344 in 2020 to 0.5148 in 2024. Compared to other ASEAN countries, the country's HCI performance in 2024 is still below the world average of 0.6382 and the ASEAN average of 0.7218 (United Nation, 2024).

Figure 2.3. *EGDI between Cambodia and ASEAN in 2024*



Source from United Nation (2024)

2.8. ICT Skill Challenges and the ICT skill Demand in the Public Sector

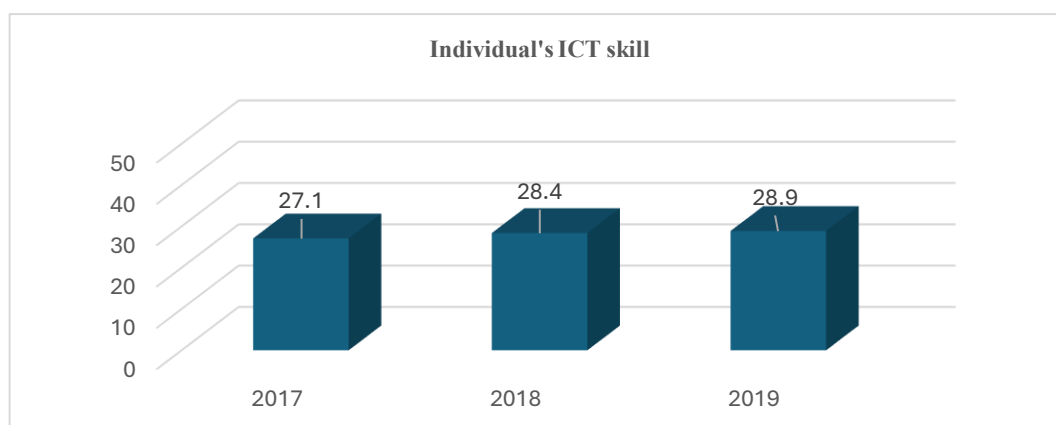
The shortage of ICT skills is mainly focused on two main factors: supply-side and demand-side constraints (UNDP, 2007). On the supply side, the shortage of ICT skills is triggered by organizations' inability to meet demand for IT-related roles due to a lack of skilled labor (Cukier, 2003; Quintini, 2011; Sang, Lee, & Lee, 2009). On the demand side, the growing need for ICT skills in organizations exacerbates the shortage (López-Bassols, 2002; McGuinness et al., 2018). Considering these factors, skill shortage also occurs due to the issues identified by the imbalance between skill development and skill requirements needed by the job demand in the ICT field (Li, 2022). The need for skilled labor has increased due to ICT-driven changes that have also increased the productivity of skilled labor (Acemoglu, 2003).

However, Cambodia is concerned with ICT skill uses on the demand side constraints. ICT skills are considered vital indicators to measure the level of HCI in technology (Savuth & Sothea, 2023). There are not enough IT workers to supply the

labor market, which leads to having IT employee shortage in both the private and public sectors.

While there is no availability of the latest data on individuals with basic ICT skills for assessment in Cambodia, the ICT skills are considered an indicator in evaluating the International Telecommunication Union (ITU), showing that basic ICT skills are generally challenging. Figure 2.4 shows that by 2019, only 28.9% of the people had sufficient basic knowledge of ICT skills; the percentage increased slightly from 2017 (27.1) and 2018 (28.4). Overall, the ICT skill indicates that the percentage of ICT skills was below 50% (International Telecommunication Union, 2020).

Figure 2.4. *Individual ICT Skills*



Source: International Telecommunication Union (2020)

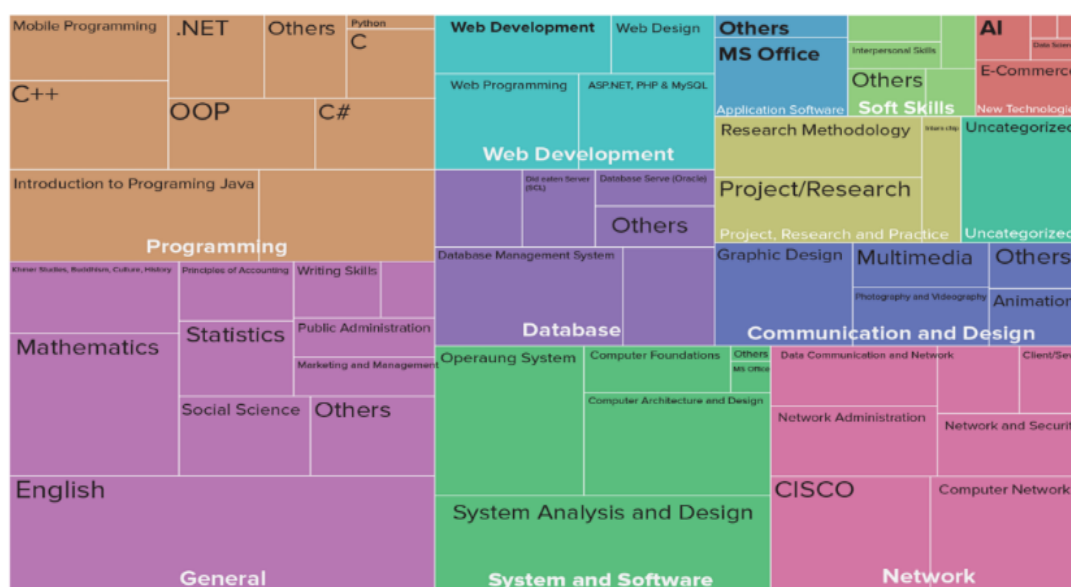
The limitation of ICT skills leads to digital skill problems due to the low HCI level. The low HCI measurement results from low STEM (science, technology, engineering, and mathematics) education and low registration training for private and public sectors.

Cambodia's STEM education level and digital skills remain relatively low (RGC, 2024). According to Cambodia Academy of Digital Technology (2021), there are some reasons behind the shortage of digital skills, such as outdated university curricula, high tuition fees, and unqualified instructors. Among these, the primary concern is the lack of skilled instructors in the technology area. This issue is because the perspective of the universities focuses a little on related subjects such as English, mathematics, and statistics, all relevant to the development of digital

skills, resulting in shortages in the digital workforce in the country (Cambodia Academy of Digital Technology, 2021; Corrad & Tungjan, 2019).

For instance, they make up 25 % of the 18 university facilities. Only two institutions offer courses in Python, a programming language used in data science. For example, only a small percentage of universities offer the subjects of cloud computing, data science, machine learning, Artificial Intelligence (AI), and fintech. According to Cambodia Academy of Digital Technology (2021), a study points out that The demand for STEM jobs still outweighs the number of STEM graduates. The courses with computer programming only make up 17 % of the program, while other subjects related to computer systems and software only make up 14 % or 12 % of the course program.

Figure 2.5. *Technology and Digital Programs for Higher Education*



Source: Cambodia Academy of Digital Technology (2021)

According to Corrado et al. (2021), the lack of digital training in education reflects that Cambodia does not prepare itself enough for preparation. It also noted that higher education has just started to move into education 4.0 due to its challenges. Thus, integration into higher education needs policies and strategies to solve these issues.

RGC (2022) shows that lack of IT skills training has also led to shortages in the public sector. All ministries have ICT units with staff responsible for ICT-related

tasks within their organizational structure. However, only ten (or 40 percent) clearly defined the roles and responsibilities of each function. For the remaining 60 percent, responsibilities for performing functions are not well defined and are confused with other responsibilities and responsibilities. According to the technical units' response, there is a need for 784 more highly qualified officers to support the system's development, maintenance, and management. Although the demand for new technologies has not yet emerged, the most in-demand ICT skills today are networking, software development, security, and data management and analysis. To respond to this national framework objective and the government's digital policy, the National Institute of Posts, Telecommunications (NIPTICT), with the support of MPTC, has decided to take responsibility for improving human resources by providing digital training, skills, and literacy, and promoting research and innovation for 6700 civil servants for major skills (RGC, 2022). In addition, the RGC has also issued and designed some legal frameworks, guidelines, laws, and other relevant regulations to advance the ICT sector in compliance with international standards and their implementation and to strengthen the private and public sectors.

2.9. Current Digital Adoption in Cambodia

2.9.1. Digital Adoption of Cambodia in 2024

According to the Institute (2024), the Network Readiness Index (NRI) 2024 has revealed that Cambodia's networking readiness index ranked 110th among 133 countries worldwide and 21st in Asia Pacific and ASEAN. The value of the NRI consist of pillars and sub-pillars while NRI is calculated from a combination of four different pillars: technology (consisting of indicators such as access, content, and future technologies), which has a value of 27.6; people (consisting of individuals, businesses, and governments) which has a value of 33.64, Governance 36.60 (trust, regulation, and inclusion), and impact 44.38 (access, content, and future technologies). However, Cambodia lags the Asia Pacific in four pillars. This NRI value reflects that Cambodia remains low among countries in the Asia Pacific and ASEAN. It was noticed that they fell from 108th in 2023¹¹ to 110th in 2024. The low

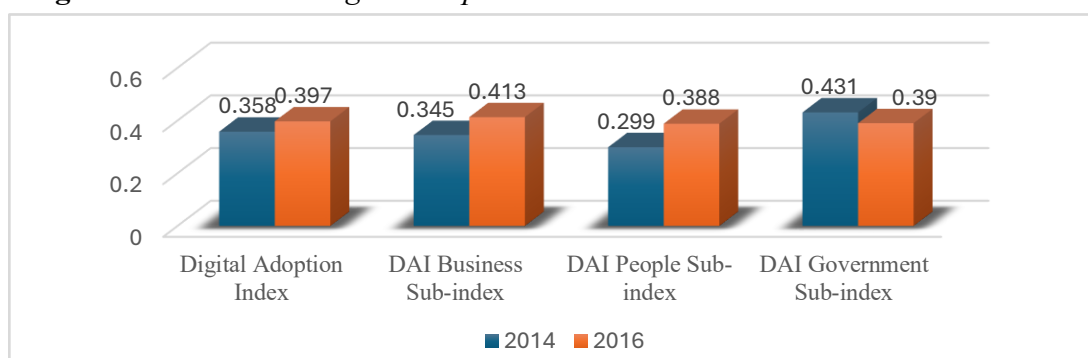
¹¹ According to the Network Readiness Index (NRI) 2023 report, Cambodia's overall performance includes a Technology pillar with an index value of 31.23, a People pillar at

value of NRI in 2024 would decrease due to the decrease in the value of technology and governance and the impact of these pillars in Cambodia's digital society.

2.9.2. Digital Government Adoption in the Public Sector

Although there has been no assessment report on the current global digital adoption situation in the public sector from 2016 to the present, the information provides an overview of the background of digital adoption, resulting in a slight improvement in the initial phase. Based on the Digital Adoption Index (DAI), Cambodia is also minimal as a low result of combining three sub-indices of DAI, such as the DIA Business Sub-index, DIA People Sub-index, and Government Sub-index. Figure 2.6 shows that the latest data to which DAI rose from 0.36 to 0.40 in 2014 and 2016, while the other three indices show that the business sub-index increased from 0.34 to 0.41 and the people's DAI from 0.299 to 0.43 in 2014 and 2016, respectively. In contrast, the government DAI decreased from 0.43 in 2014 to 0.39 in 2016. Therefore, Cambodia's indices of the DAI are below the ASEAN average (0.5504) in 2016, ranked 7th, similar to the 2022 HCI's rank and global average (Savuth & Sothea, 2023; World Bank, 2016). then, the digital government of Cambodia rose to 0.51 in 2021.

Figure 2.6. *Cambodia Digital Adoption Index*



Source: World Bank (2016)

2.10. Conclusion

This chapter gave a comprehensive definition of e-Government and outlined the main categories of e-Government services. It also illustrated the history of e-

30.22, a Governance pillar at 34.88, and an Impact pillar at 46.23 (The Portulans Institute, 2023). See: [NRI 2023 Edition – Press Release – Network Readiness Index](#).

Government from the early 2000s. This chapter also explains the challenges of ICT infrastructure in implementing e-Government, especially in the public sector. It also examined the root causes of the ICT skills shortage by emphasizing issues such as the limited availability of STEM and ICT education, the lack of qualified instructors, and the low number of universities offering ICT courses. A comparative analysis was also presented, assessing the progress of government technology and e-Government development in ASEAN countries, showing Cambodia lags behind its regional counterparts. Finally, this chapter discussed the status of DAI, with a particular focus on ICT adoption in the private and public sectors.

Chapter 3: Literature Review

3.1. Introduction

This chapter starts with identifying key aspects of ICT adoption, starting with an overview of the implementation of the ICT system to contextualize the concept of individual adoption and the related processes, which is the central theme of this thesis in section 3.2.1. The concept of ICT adoption is then obtained from an implementation process, with definitions and stages established through a review of relevant literature in section 3.2.2. This clarifies the meaning of the term ICT adoption and identifies a specific stage in the adoption process, which will be the focus of the thesis study in section 3.2.3.

This chapter reviews individual adoption as a sub-process of diffusion in section 3.2.4, and it conceptualized the stage of ICT adoption based on the UTAUT in section 3.3. Then, this chapter also reviews relevant psychological theories and technology adoption models, including the Technology Acceptance Model (TAM) and the Extended Technology Acceptance Model (TAM2) in section 3.4.1. Then, the study starts to identify the shortcomings of TAM, TAM2, and Diffusion of Innovation (DOI) in section 3.4.2. The discussion then focuses on the UTAUT model section as a model base in the study in section 3.5 to identify the main research gaps in this study in section 3.6.

3.2. The ICT System Implementation in Organization

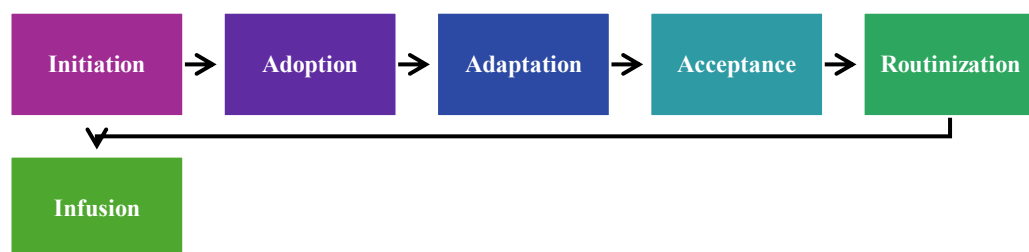
3.2.1. ICT Implementation and its Processes

Kwon and Zmud (1987) and Korpelaine (2011) defined the implementation of the ICT system as the organization's effort to ensure technology diffusion among user communities. In addition, Cooper and Zmud (1990) also define the definition of implementation as involving the activities related to the new technology adoption, which require the design and development, installation, training, and internalization of routines for effective utilization (Kwon & Zmud, 1987).

Cooper and Zmud (1990) define IT implementation in six stages for the ICT implementation process (see Figure 3.1). The ICT system implementation process model has different stages, from the first stage of initiation to infusion.

- **First stage (Initiation):** the stage of IT solutions and organizational issues and opportunities scanned actively or passively. Technological innovation (push), organizational need (pull), or both can cause pressure to change.
- **Second stage (Adoption):** the stage of negotiations to obtain organizational support for using innovative ICT.
- **Third stage (Adaptation):** the stage of development and maintenance of IT applications and infrastructure, as well as training for members in the organization to use the new procedure and IT application.
- **Fourth stage (Acceptance):** the stage of technology utilization by the users and members of the organization.
- **Fourth stage (Routinization):** the stage of IT application usage encouragement as normal activities.
- **Fourth stage (Infusion):** the stage of intended benefits of the technology obtained through effective use of the technology. The model of ICT system implementation processes by the Cooper and Zmud (1990)

Figure 3.1. *Model of ICT System Implementation*



Source: Cooper and Zmud (1990)

The adoption concept refers to organizational adoption (ICT implementation) or individual user adoption. According to Kwon and Zmud (1987) and Cooper and Zmud (1990). Thus, Cooper (1998) stresses the significance of distinguishing between adoption and implementation since the latter starts a complicated phenomenon. The adoption process is extended by implementation. That would be present when users try to use technology for their jobs (Linton, 2002).

Research in the field of implementation also uses other terms to describe the process of implementation and acceptance, such as assimilation and adaptation. These two key terms (i.e., implementation and adoption processes such as

assimilation and adoption) refer to more focus than the implementation processes of ICT systems in the organization in Figure 3.1. The definition of assimilation is defined as “the extent to which the use of a technology diffuses across organizational work processes and becomes routinized in the activities associated with those processes” (Chatterjee et al., 2002, p. 66). According to DeSanctis and Poole (1994), adaptation refers to the processes by which the user in the community adopts technology while Majchrzak et al. (2000) view adaptation as a dynamic process that people use to integrate new technology into their daily operations.

3.2.2. ICT Adoption Concept in the Study

The definition of adoption is determined by the psychological perspective in this thesis. From this perspective, Adoption process is mental and behavioral states that people go through before adopting or rejecting innovations (Howard & Moore, 1982; Sepasgoza, 2015). For another definition, Carr Jr (1999) defines adoption refers to "the stage in which a technology is selected for use by an individual or an organization". Davis (1989) also investigates individual technology acceptance involving a psychological state linked to the intended use of specific technology. Adoption, on the other hand, also refers to the choice to use the new technology, whereas decision-making is a subset of actions that begin with an action stimulus and conclude with a specific commitment to action (Mintzberg, 1976). The psychological state of technology adoption has been the subject of numerous previous research studies. Those scholars focus on different aspects of antecedents' influence on psychological behavior in technology, such as TAM (Davis, 1989) and UATUT (Venkatesh et al., 2003). For other scholars, Fishbein and Ajzen (1975) focused on antecedent, attitude, and behavior in the theory of reasoned action (TRA). The Ajzen (1985) developed the theory of extended TRA, and Rogers (1995) developed for technology adoption diffusion

3.2.3. ICT Adoption Processes Concept and the Stage Defined.

Adoption is the main concept, and it refers to the process by which individual users decide whether or not to accept ICT into their working processes based on the studies of Davis (1989), Venkatesh et al. (2003), and Rogers (1995).

This thesis emphasizes the factors that make individual users adopt or reject ICT based on the condition of enough support and backing for implementation and IT application for organizational adoption. In the adoption process for this study, ICT adoption includes the fourth stage, as determined by Cooper and Zmud (1990) which illustrates the ICT implementation process. The study covers four stages: initiation, adoption, adaptation, and acceptance (See Figure 3.1). For the routinization and infusion, these stages would not be the focus of this study since the purpose was to examine the factors affecting the ICTs adoption that have already progressed through the fourth stage backward from acceptance. In contrast, the other two subsequent stages of acceptance are not used in this study.

Regarding the acceptance or rejection of ICT use, this study provides the initiation, adoption, and adaptation situation before the ICT acceptance/ adoption stages. This means that organizational needs, support, and ICT solutions are identified. The application and organizational procedures are then facilitated and developed, and training is provided for the adaptation stage (Korpelaine, 2011; Kwon & Zmud, 1987). In other words, they believed that the level of facilitating conditions, perceived ease of use, and usefulness made them accept or reject the ICT adoption after using ICT based on the concept of Davis (1989) and Venkatesh et al. (2003). Similarly, it involves behavioral intention influencing an individual's technological adoption. Behavioral intention is performed when the individual is satisfied with the technology system, leading to continued technology usage (Momani, 2020).

3.2.4. Individual Adoption as the Sub-Process of Diffusion

Based on the Diffusion of Innovation Theory (DIT), individual adoption is separated from the DIT, which developed the innovation diffusion theory to understand innovative diffusion in society (Rogers, 2003). Thus, DIT has discussed the adoption of technology. Therefore, the adoption decision is divided into five stages, like the stages of the UTAUT model technology adoption concept below:

The first stage is an innovator. The first stage happens when the individual is aware of innovation influencing the characteristics. The second stage is persuasion or early adopter. At this stage, individuals gain more knowledge about

insightful innovation characteristics, which leads individuals to have a judgment on preference for innovation. The third stage is individuals' decisions to adopt innovative technology. The fourth stage is the implementation stage, which is based on the decision. The last stage is the stage of confirmation based on their evaluation of the implementation and decision process. Users start to decide whether they re-decide whether they go on the technology or not (Rogers, 1995). The innovator and confirmation stages are divided into three stages: pre-adoption, adoption decision, and post-adoption (Damanpour & Schneider, 2006; Zmud, 1982). These stages are also similar to the ICT acceptance in ICT system implementation, the stage in the UTAUT model, and the diffusion of innovation context.

Figure 3.2. *Processes of Technology Adoption*

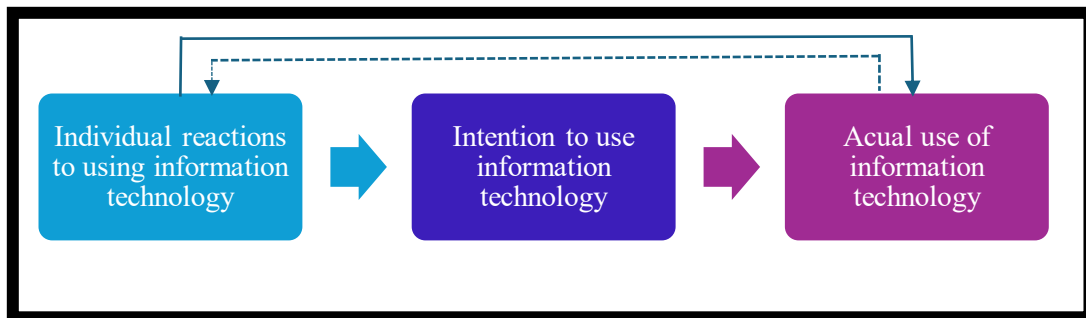


Source: Rogers (1995)

3.3. User Acceptance of Technology in the UTAUT Model.

Various studies have been conducted in the IS literature to respond to how and why individual users adopt the new technology (Venkatesh et al., 2003). As discussed in sections 3.2.3 and 3.2.4, ICT adoption has two important focuses: the organizational and the individual levels. These two important main adoption levels become important for users' acceptance. However, this study focuses on the individual adoption level. Based on Venkatesh et al. (2003), the primary dependent variable in the theoretical models will be incorporated into the current review, comparison, and synthesis is intention and/or usage. Venkatesh et al. (2003) examined technology usage as the dependent variable to understand the role of intention as a predictor of behavior. Venkatesh et al. (2003) presented a basic conceptual framework for explaining individual acceptance (see Figure 3.3).

Figure 3.3. *Basic Conceptual Framework for User Acceptance Models*



Source: Venkatesh et al. (2003)

3.4. Why Was the UTAUT Model Selected in this Study?

This thesis used the UTAUT model as the main framework to explore the factors influencing behavioral intention to use ICT in the public sector. There are two main reasons for choosing this model:

- 3.4.1. An overview of models (TAM, TAM2 and DOI) in previous studies.
- 3.4.2. The shortcomings of TAM and TAM2, DOI

3.4.1. An Overview of Models (TAM, TAM2 and DOI).

a, Unified Theory of Acceptance and the Use of Technology

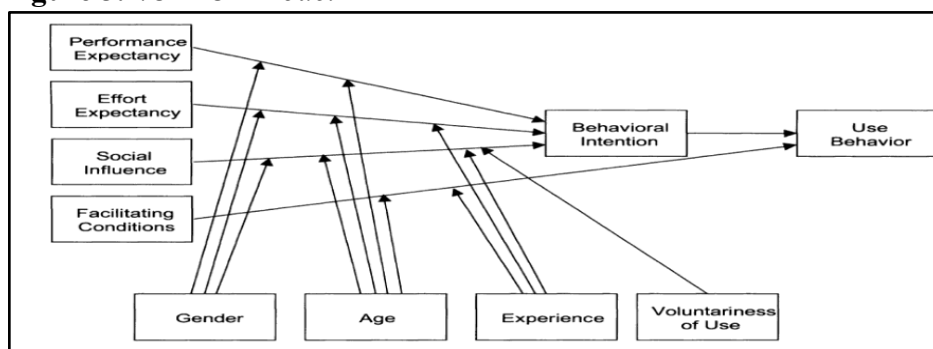
This thesis used the UTAUT model as a basic model in this research framework to investigate the adoption of ICT in e-Government. This model was developed by Venkatesh et al. (2003), and it is generally recognized as a comprehensive model due to its various technology adoption integration and strong empirical support across various IT adoption contexts. This model was a review and synthesis of eight prominent technology acceptance theories or models, such as the Combined Theory of Planned Behavior and Technology Acceptance Model (C-TPB-TAM), the theory of PC utilization (MPCU), the theory of innovation of diffusion theory (IDT), the motivation model (MM), the TRA, the theory of motivation model (MM), the theory of planned behavior (TBP), and the theory of PC utilization which were integrated to develop the UTAUT model (Ahmed Hariri, 2014; Weerakkody et al., 2009)

In the process of UTAUT model development, a review of eight prominent models was conducted to identify the similarities and differences across the models. The data collection process was also divided into two stages, which relieved the usage of voluntary and mandatory settings. The Venkatesh et al. (2003) conducted

the research based on longitudinal validation and comparison among eight models by using the four-organization data¹² with three different periods within pre-post training, three months after technology implementation, and the actual usage of technology after six months of post training for the participants in four organizations. This method provides the basis for assessing relatively robust explanations among each model in the process of UTAUT model development. To validate the model, an empirical test was conducted to investigate the primary support of the UTAUT model for the contention that UTAUT outperformed each model. The UTAUT model consists of 32 constructs in the eight models (i.e., TPB, MM, TAM, TAR, C-TPB-TAM, MPCU, IDT, and SCT into four main constructs such as the performance expectancy, effort expectancy, social influence, and facilitating condition). In this model, performance expectancy, effort expectancy, and social influence have an influence on behavioral intention, while facilitating condition and behavioral intention had an influence on the user behavior (see Figure 9).

In addition, Venkatesh et al. (2003) examined how the moderating factors of eight models—including age, gender, experience, and voluntariness of use affect the choice to adopt or not to adopt ICT (see Figure 3.4). In the UTAUT model, the relationship between core constructs, behavioral intention, and user behavior is also moderated by age, gender, experience, and voluntariness of use.

Figure 3.4. UTAUT Model



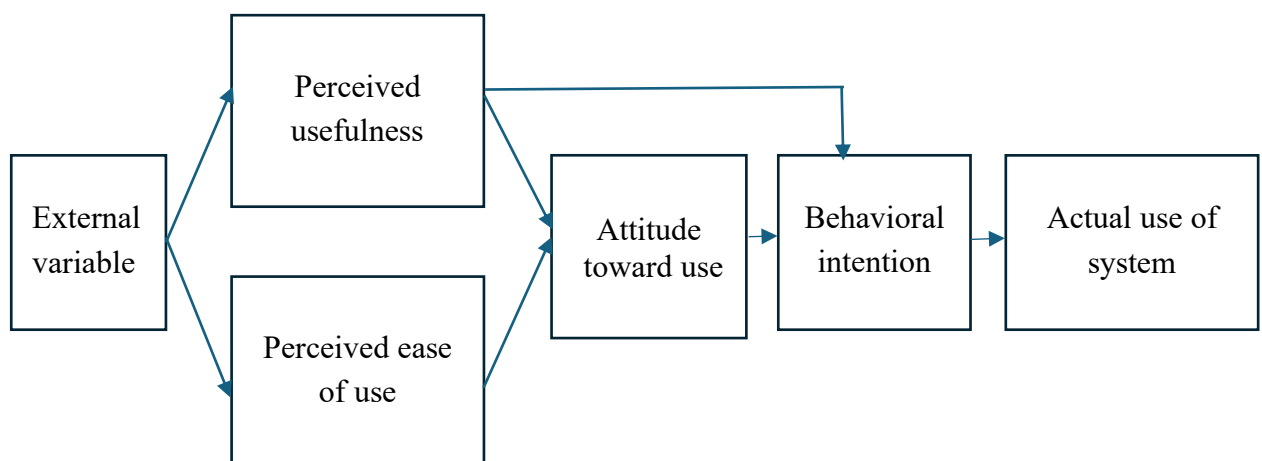
Source: Venkatesh et al. (2003)

¹² The four organizations were illustrated as the field of product development / entertainment and those are public administration/accounting, telecom service/ sale, and banking/ businesses account management.

b, Technology Acceptance Model (TAM)

The TAM model is the foundation of the UTAUT Model. However, the UTAUT model was designed based on the TAM model since TAM does not consider obstacles like time or financial limitations as reasons why a person would not use an information system, and it leaves out some significant sources of variation. The TAM model does not include the social and control factors that impact behavioral intention, and individual characteristics like age, gender, and self-efficacy frequently influence behavioral intention (Rabaa'i, 2017; Straub, 2009). The TAM model explains users' adoption based mainly on the Perceived Ease of Use and Perceived Usefulness (Davis, 1989; Venkatesh et al., 2003). TAM is the model considered the general design to investigate human behavior (Fishbein & Ajzen, 1975). This model consists of two main constructs: the perceived usefulness and perceived ease of use. According to Davis et al. (1989), Perceived usefulness is defined as the degree to which someone believes that using the system would improve their work performance. The perceived ease of use is defined as "the degree to which someone believes that using the system would be free of physical and mental effort.". TAM has been applied to many kinds of information technology, and it has been found to be too general to find the reasons that influence users to accept new technology (see Figure 3.5).

Figure 3.5. *Technology Acceptance Model*



Source: Davis et al. (1989)

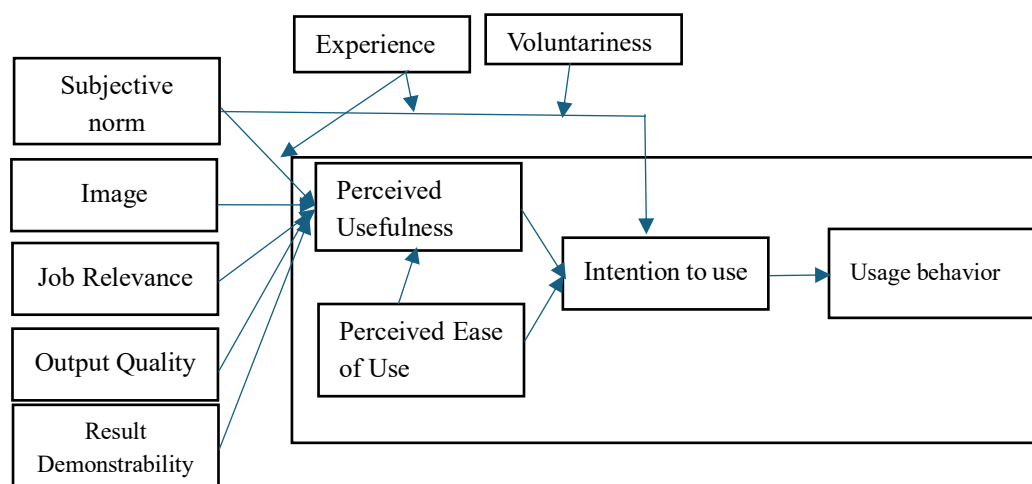
c, Extension of TAM (TAM2)

An empirical study was conducted to extend the TAM and investigate the perceived usefulness and behavioral intention regarding social influence and cognitive instrumental processes. The external variables that influence the perceived usefulness and perceived ease of use are not entirely explored by the TAM. Therefore, TAM is also extended into TAM2, which includes the external factors/variables that impact these two main constructs (e.g., perceived usefulness and perceived ease of use)(Venkatesh & Davis, 2000). Venkatesh and Davis (2000) extended the TAM into TAM2 by including additional determinants of perceived usefulness

- *Subjective norm*: the impact of others' influence on individuals to use or not to use technology.
- *Job relevance*: the level of technology tools applicable to use.
- *Image*: the users' wish to continue to be seen favorably by others.
- *Output quality*: the extent to which technology adequately performs the required tasks.
- *Result demonstrability*: the production of tangible results.

Perceived ease of use includes two moderating variables: experience and voluntariness (see Figure 3.6).

Figure 3.6.Extended Technology Acceptance Model (TAM2)



Source: Venkatesh and Davis (2000)

d, Technology Adoption with DOI

DOI model serves as one of the theoretical foundations of the UTAUT. The constructs from DOI were extended and refined when developing the UTAUT model. According to Venkatesh et al. (2003), several core concepts from DOI were integrated into UTAUT's key components: for example, *job relevance* as a sub-construct of performance expectancy, *complexity as a sub-construct of effort expectancy*, social influence, and *compatibility* as a sub-construct of facilitating conditions. The DOI model emphasizes how individuals make decisions regarding technology adoption, focusing on perceptions of system complexity, the influence of interpersonal and social networks, and the degree to which a new technology aligns with users' existing values, experiences, and needs. In this way, UTAUT builds upon DOI by offering a more structured and empirically validated framework for understanding user acceptance and behavior in technology implementation contexts.

DOI focuses on how interpersonal and social networks affect adoption decisions. Moreover, facilitating condition in UTAUT reflect the DOI's emphasis on the infrastructure and support systems needed for diffusion. Thus, the DOI model contributes to UTAUT by highlighting how innovations are communicated and adopted over time, especially through social contexts. All these DOI constructs integrated into the UTAUT model have an influence on user behavior.

The DOI explains the innovation adoption process and examines the fundamental causes of the wide range of innovation adoption rates. (Rogers, 2003). Moore and Benbasat (1991) modified the theory and innovation properties of the IS concept. According to DOI, the factors that affect innovation are relative advantages, complexity, compatibility, trialability, and observability. According to Rogers (1995), five factors are characteristics of innovations that influence adoption. According to Rogers (1995), relative advantage is defined as a measure of how much innovation is thought to improve the concept it substitutes. Compatibility is the extent to which innovations are adopted more quickly when they align with a person's values, norms, beliefs, and needs. Complexity is the extent to which user-friendly innovations are more likely to be adopted. Trialability

is the extent to which an innovation can be tested in a restricted setting. Observability is the extent to which a particular innovation will be easier to adopt if its advantages are obvious to recognize.

3.4.2. Shortcomings of TAM, TAM2 and DOI in Previous Studies

In Cambodia previous studies conducted by Sang and his colleagues¹³ on the technology adoption, the integration of theoretical grounding TAM and DOI was conducted to investigate technology adoption in the G2G framework, focusing on the specific system, the Government Administration Information System (GAIS). study examined the factor affecting Cambodia public employees' adoption of e-Government service in 2009 since the GAIS¹⁴ was implemented. This study used theoretical grounding from TAM and DOI, TAM2, and trust construct to investigate the factors affecting technology adoption. Thus, the research study developed a conceptual structural model that includes the determinant of perceived usefulness, that is, subjective norm, imaging, job relevance, output quality, and the other constructs, including perceived ease of use, trust, and compatibility considering as the directing impact on the intention to use GAIS. Furthermore, the research used the target population and data collected from a survey among 112 public officers who use the GAIS system in 12 ministries¹⁵ in Cambodia. This research found that perceived usefulness, relative advantage, and trust had an influence on GIAS adoption while Perceived usefulness of the GAIS affected by norm, image, output quality, and perceived ease of use. This research finding shows that perceived

¹³ The studies conducted by Sang, Lee, and Lee (2009), and Sang et al. (2010, 2011), are the only one previous research work that examined the GIAS system and reported the same findings. The authors published their results in different academic journals.

¹⁴ Through the representatives in the working group led by the National ICT Development Authority Secretariat, the public servants from each ministry, state secretariat, and the municipality of Phnom Penh implemented this GAIS system. Infrastructures for the four applications include the vast area network and local area network for the Phnom Penh municipality, 27 ministries, and state secretariats. The GAIS system allows all government officers to communicate automatically and electronically by accessing the internet and using email to accomplish the computerized registration systems when the real estate and vehicle registration system is operating.

¹⁵ The participants are from Office of the Council of Ministers, Secretariat of Public Service Ministry of Water Resources, National audit authority, Ministry of agriculture, Ministry of Economy and Finance, Ministry of planning, Ministry of Vocations and Training, Ministry of National Defense, Ministry of Environment, Ministry of Information, Ministry of Posts and Telecommunication.

usefulness, relative advantage, and trust constructs could explain only 31.5% of the variance in behavioral intention to accept the GIAS. While determinants such as the subjective norm, output quality, images, and perceived ease of use have had its influence on perceived usefulness accounting for 39.6% of the variance (Sang et al., 2010).

Based on the previous study, this study investigated the individual decision to adopt technology by integrating with models in the literature due to its success in determining the acceptance and use of information technology (Venkatesh et al., 2000) (see Figure 3.7).

a, Review the Cambodia Previous Studies

For the construct in the previous study's model, the study used theoretical grounding from TAM (Davis et al., 1989) and DOI. In the TAM model, two important predictors influence the intention to use technology: perceived ease of use and perceived usefulness (Davis et al., 1989).

The previous study used TAM2 by extending the TAM since the impact of external factors is not completely explored in TAM. Thus, the previous study extended TAM based on including some important constructs as the determinants of perceived usefulness, which are subjective norm¹⁶, image¹⁷, job relevance, and output quality, but excluded some variables, such as the result demonstrability due to the non-significance in the previous study (Chismar & Wiley, 2003). Moderator, experience, and voluntariness were also excluded due to the previous assumption that voluntariness is the degree to which individuals feel they had the choice to use the innovation (Van Slyke et al., 2004) and the experience was removed in the model due to the research study used the GIAS as an existing technology (see Figure 3.7).

Some excluded constructs from the DOI were not used in the previous study, such as the trialability and observability construct¹⁸. These constructs were not used

¹⁶ Refer to "a person's perception that most people who are important to him think he should or should not perform the behavior in question" Fishbein and Ajzen (1975, p. 302)

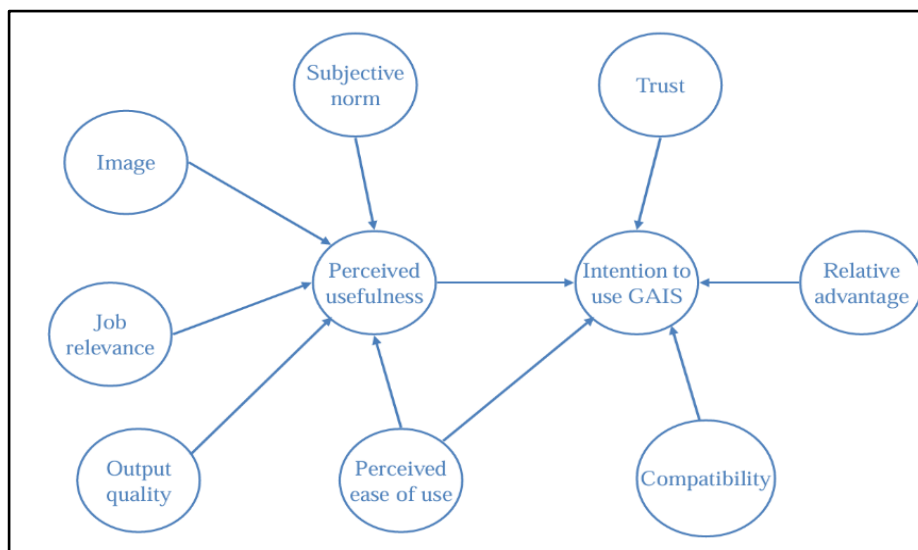
¹⁷ Refer to "the degree to which use of an innovation is perceived to enhance one's status in a social system (see Moore and Benbasat (1991, p. 195)

¹⁸ The definition of these constructs can be found in section DOI model above.

in this research study because the previous study found that this construct had no significance on the model.

According to model integration, the previous study selected three constructs from the DOI, such as the relative advantage, compatibility, and complexity, to be consistent with the innovation adoption. The trust construct (TR) was added to the modified TAM in the prior study because its absence would hinder the adoption of technology (Bélanger & Carter, 2008; Carter & Weerakkody, 2008)

Figure 3.7. *Previous Study's Model of User Acceptance of GAIS.*



Sources: Sang et al. (2010) and Sang et al. (2010, 2011)

Therefore, the previous study regarded ease of use, perceived usefulness and other additional constructs as crucial constructs (TR, compatibility, relative advantage) to examine the user's intention while perceived usefulness had its determinants including image, job relevance, output quality and subjective norm and perceived ease of use.

b, Shortcoming of Integrated Models in the Previous Studies

The previous study used the integrated models to identify technology adoption by adding some constructs. However, the previous study did not include social factors and facilitating condition to investigate their impact on behavioral intention.

The integration TAM, TAM2, and DOI still needs more potential direction to overcome this limitation to improve its technology adoption explanation as follows:

(i), The previous study used perceived ease of use from TAM only to investigate its impact on the intention to use technology, but the previous study's model did not include the ease of use and complexity¹⁹ construct, while the ease of use and complexity measures the extent to which the system is rather challenging to use and comprehend (Thompson et al., 1991). Even though some constructs were used in previous research to measure the effort-oriented construct in this study model, the excluded constructs would be important to understand the difficulties of using ICT /ease of use (Thompson et al., 1991). Thus, effort expectancy in the UTAUT model would be important to measure the behavioral intention toward actual use (Venkatesh et al., 2003). In addition, there were missing constructs, such as extrinsic motivation, outcome expectation, and job fit, that could be included to measure the technology adoption related to the performance expectancy in using ICT.

There is also additional ease of use and complexity in the effort expectancy, and the motivation, outcome expectation, and job fit in performance expectancy would increase the high variance to measure the behavioral intention toward using technology.

(ii), Integration of TAM, TAM2, and DOI was conducted to investigate technology adoption in the previous study. However, the previous study did not include the direct impact of social influence on behavioral intention. The previous study's model did not consider the impact of social and image factors on behavioral intention as a predictor to explain the intention to use or user's behavior directly, which is also conducted by Rabaa'i (2017) & Straub (2009). According to Venkatesh et al. (2003), it was discovered that social norms (SN) were a significant factor in directly predicting behavioral intention (BI). The previous study did not include social factors (e.g., peer, community support), image, and subjective norms frequently influencing behavioral intention since Venkatesh et al. (2003) found that the social influence is the combination of constructs such as the subjective norm,

¹⁹ Even though the previous study considered the perceived ease of use represented for complexity but in the UTAUT model, the complexity was integrated to investigate the relative difficulty in effort expectancy to use technology or system (Carter & Weerakkody, 2008).

social factors, and image that have a high explanation on the user's behavioral intention. Thus, this social influence is the factor that explains behavioral intention.

(iii), the previous study used a compatibility construct from the DOI model to measure users' behavioral intention to use. However, the previous study did not use compatibility to measure technology usage, and technology usage was not included to measure the influence of the user's behavioral intention. In addition, the previous study did not include the facilitating condition to investigate its impact on technology usage since the behavioral control, facilitating condition, and compatibility represented the facilitating condition's influence on technology usage. In addition, the core concept of facilitating conditions emphasizes the organization's support and technical infrastructure that influence technology usage (Venkatesh et al., 2003).

(iv), this previous study above did not include the moderating effect (age, gender, work experience, and voluntariness of use) on behavioral intention since moderators influence the relationship of perceived usefulness and perceived ease of use on intention to use. According to Marangunić and Granić (2015), the ability of the user may reduce the cognitive ability using technology by moderating by age and gender, and another related factor also found by some researchers reveals that cognitive abilities are potent indicators of perceived usefulness, perceived ease of use, age-related performance declines and cognitive resources. The UTAUT model includes age, gender, experience, and voluntariness of use as its moderators to examine the moderating effect on the relationship between the UTAUT model's constructs and behavioral intention and the actual use of technology.

3.5. The UTAUT Model Section as Model Base in this Study.

Based on the other models, such as TAM, TAM2, and DOI, do not have enough variables to explain the adoption of technology, and those models have disadvantages, such as the lack of factors to explain technology adoption. The TAM model does not include the social and control factors that impact behavioral intention and individual characteristics like age and gender as moderators, which could interrupt the TAM-independent variable influencing behavioral attention (Rabaa'i, 2017; Straub, 2009). TAM2 can not specify the influence of experience on

behavior and does not provide a prediction of variance in users' behavior (Momani, 2020). The DOI model focuses on the attributes of innovation without considering any psychological factors that influence the acceptance of innovations (Khan et al., 2010).

Hence, recent publications on e-Government also tend to adopt the UTUAT model as it highlights most of the variables that could explain the factors in adoption in technology since other previous models have their advantages and disadvantages (Ahmed Hariri, 2014; Momani, 2020). The UTAUT model has become the most powerful model in technological adoption, picking up some robust constructs from previous models that significantly influence behavioral intention toward the actual use of technology. It is considered the well-established model to explain IT adoption, with the highest variance of 70% compared to those previous models and 50% of actual use of technology (Venkatesh et al., 2012), while the variance of the eight models can be explained by around 17% and 53% in terms of the use of information.

The UTAUT model has performance expectancy, effort expectancy, social influence, facilitating construct, behavioral intention, and user behavior, and its moderators provide insight into the adoption of individual behavioral intention as follows.

3.5.1. Performance Expectancy and its Influence on Behavioral Intention

Performance expectancy refers to the extent to which someone thinks utilizing ICT will enable them to perform better at work (Venkatesh et al., 2003). Performance expectancy is the combination of some IS models, such as perceived usefulness from extrinsic motivation from MM and the job fit from the MPCU model, relative advantage from IDT model, TAM/TAM2 (Davis et al., 1989), and C-TAM-TPB), and the outcome expectation (SCT). According to Davis et al. (1989), and C-TAM-TPB), and the outcome expectation (SCT). According to (Venkatesh et al., 2003), performance expectancy is the strongest predictor of behavioral intention in the UTAUT model. In addition, age and gender also moderate the influence of performance expectancy on behavioral intention (Venkatesh et al., 2003).

Some studies have found that performance expectancy influences behavioral intention. For instance, Gupta et al. (2008) examined how ICT was

adopted in government organizations in developing countries in India by surveying 102 respondents from public servants. The research found that performance expectancy, effort expectancy, and social influence significantly positively impacted the intention to use ICT, and facilitating conditions affected actual use in a government organization in India.

In another study, Batara et al. (2017) examined the association of technology acceptance variables to adopt e-Government transformation. This study used 160 respondents surveyed from the employees of the local government units of Surabaya, Indonesia, and Davao, Philippines, and found that performance expectancy had an influence on behavioral intention.

Furthermore, the UTAUT model was also conducted to investigate the ICT adoption in public health among employees. Kijisanayotin et al. (2009) conducted a study on adopting health information technology in Thailand's community health centers using the UTAUT model. The study survey was conducted among 1607 respondents who use CHCs' IT among employees and found that performance expectancy and voluntariness had an influence on IT acceptance. Al-Shafi (2009) also carried out a study to investigate the elements influencing the adoption and implementation of e-Government in the state of Qatar. This study also found that performance expectancy significantly influenced behavioral intention.

3.5.2. Effort Expectancy and its Influence on Behavioral Intention

Effort expectancy is defined as the degree of ease associated with using the system (Venkatesh et al., 2003). Effort expectancy consists of the constructs from three existing models: perceived ease of use from the TAM/TAM2, complexity from the MPCU, and ease of use from IDT. This construct influences the behavioral intention. In addition, age, gender, and experience are considered moderators that moderate the influence of effort expectancy on behavioral intention, according to Venkatesh et al. (2003) and Venkatesh et al. (2000). Some studies found that effort expectancy had an impact on the behavioral intention among public servants using ICT in the organization. For instance, Alraja et al. (2016) conducted a study to examine the influence of effort expectancy and performance expectancy on employees adopting e-Government from Oman. This research used the UTAUT

model by selecting the constructs of performance expectancy and effort expectancy. This study used 204 sample public servants who use electronic government in the Sultanate of Oman. This research found that effort expectancy influenced behavioral intention. In another study in the education field, Abbad (2021) conducted a study on the actual usage of Moodle, an e-learning system, among undergraduate students at Hashemite University, a public university in Jordan. The study used 370 students and this study found that effort expectancy influenced behavioral intention.

3.5.3. Social Influence and its Influence on Behavioral Intention

Social influence is defined as the degree of expectation to which an individual perceived that the important others believed he or she should use the new ICT system. This construct is captured by another construct from different models from the subjective norm construct in TRA, TAM, TPB/DTPB (Ajzen, 1991; Venkatesh et al., 2003) and the combination of TAM and TBP (C-TAM-TBP) (Taylor & Todd, 1995). Social influence influences behavioral intention (Venkatesh et al., 2003). The moderator, age, gender, and experience, moderated the relationship between social influence and behavioral intention (Venkatesh et al., 2003).

Some previous studies have found that social influence influence on behavioral intention. For instance, Tabuni and Kusuma (2019) evaluated the e-Government use among civil servants by using the UTAUT model to identify the factors influencing behavioral intention among public servants with a survey of 100 samples selected from public servants from Central Mamberamo Regency. This research study found that social influence factors significantly influenced behavioral intention. In another study, Sudirman et al. (2019) conducted a study to examine the differences in e-Government adoption by civil servants among age groups and between mandatory and voluntary contexts using the UTAUT model. The study used 100 respondents. This research also found that social influence had behavioral intentions. Mosweu et al. (2016) conducted a study examining the factors for adopting and using electronic document and records management systems in Botswana using 61 action officers. This study also found that social influence significantly impacted behavioral intentions.

3.5.4. Facilitating Condition and its Influence on User Behavior.

Facilitating conditions are defined as the degree to which an individual believes that an organization and technical infrastructure support systems use (Venkatesh et al., 2003). The facilitating condition has three constructs from the different models: the perceived behavioral control, which is used in the combined Technology Adoption Model and Theory of Planned Behavior model (TAM and TPB); the facilitating condition from the model of PC Utilization (MPCU) and compatibility from TPB, TAM, MPCU and IDT models (Ajzen, 1991; Taylor & Todd, 1995; Venkatesh et al., 2003). Facilitating conditions influence the use of technology (Venkatesh et al., 2003). The age as moderator moderates the influence of facilitating conditions on the actual use of ICT (Venkatesh et al., 2003). Some research studies have been conducted to investigate how the facilitating condition influences the actual use of ICT. For instance, the Alibraheem et al. (2019) examined the adoption of e-Government by implementing electronic tax filing (ETF) among public servants. This research study used the UTAUT model with 204 Income and Sales Tax Department (ISTD) employees. This study found that the facilitating condition influenced the adoption of e-Government through the implementation of the ETF.

3.5.5. Behavioral Intention and its Influence on the User Behavior

Behavioral intention is defined as the most vital predictor in ICT use. Behavioral intention describes an individual's willingness relevant to a specific action or behavior (Davis, 1989). According to Ajzen (1991), it has been believed that the intention to use or perform is a good indicator of the behavior. Behavioral intention influences technology usage (Venkatesh et al., 2003). Davis (1989) also suggests that behavioral intention impacts technology adoption. According to Venkatesh et al. (2003), most technology adoption researchers have utilized behavior intention to predict technology adoption. Zhan et al. (2011) explored the Drivers for ICT Adoption in Government Organizations in China and found that facilitating condition and use behavior had an influence on the use behavior.

3.5.6. Moderator

According to Venkatesh et al. (2003), moderators such as gender and age moderate the impact of social influence, performance expectancy, and effort expectancy on

behavioral intention. In addition, working experience also influences the relationship between effort expectancy, social influence, facilitating condition, and behavioral intention. In contrast, age only affects the relationship between the facilitating condition and the actual use and social influence on behavioral intention, which is moderated by voluntariness of use.

When age is ignored, studies on gender differences may produce false results, according to Levy (1988). For example, the gender roles that society has long recognized. When professional women enter the workforce and continue to work until they have children, family-oriented roles may be replaced, which could significantly alter the characteristics and relationships of jobs. Venkatesh et al. (2003) and Gupta et al. (2008) found that gender roles were the key moderator that has significant effects in conjunction with technology adoption.

Regarding age's role in technology adoption, the older age group is anticipated to be more relevant to non-adopters. In contrast, the younger and middle-aged groups are anticipated to be less interested in adoption. Age is a significant factor. Based on age and technology adoption, Wang and Shih (2009); Lian and Yen (2014) and Shafi and Weerakkody (2009) conducted studies to investigate the impact of age, gender, and use experience on the role of technology adoption.

From experience, the use of systems is also anticipated to rise as more people look for assistance and support to use technology efficiently because using system experience is also essential to explain the users' effort and social expectancy and affects the facilitating condition on the user behavior. Rahman et al. (2011) and (S. AlAwadhi & A. Morris, 2008) found that the role of experience affected the impact of facilitating conditions on technology usage.

3.6. Research Gap in this study

For this thesis, the UTUAT model is selected to conduct the ICT adoption in Cambodia after reviewing the shortcomings of the integrated model (TAM, TAM2, and DOI) compared to the UTAUT Model. The UTAUT model has become a robust model that enables us to explain ICT adoption with high variance. The UTAUT model is used to examine the adoption of technology among public servants since the UTAUT model uses the four important constructs influencing the technology

adoption such as performance expectancy, effort expectancy, social influence, and facilitating condition. All of these constructs have a direct influence on the public servant's behavioral intention toward technology adoption, which is different from the technology adoption study conducted by Sang and his colleagues who studied on technology adoption using two main constructs such as perceived usefulness, which is determined by additional constructs (e.g., subjective norm, image, job relevance), and perceived ease of use, and other additional constructs such as trust, relative advantage, and compatibility to measure the user's behavioral intention. It also noted that Sang and his colleagues did not investigate the impact of social influence on behavioral intention, and facilitating conditions on technology usage.

Moreover, the previous study did not use moderator, including age, gender, experience, and voluntariness of use, to examine its impact on the technology adoption model. In fact, the moderating effect impacts each factor that influence behavioral intention and technology usage.

In contrast, the UTAUT model is a powerful model that combined various models and has a high explanation to investigate technology adoption at the individual level; this model investigates social influence impact on the users' behavior and facilitating condition impacts on the actual use of technology directly. Using the UTAUT model in the study also includes the moderating variable to investigate the moderating effect (e.g., gender and age, experience, and voluntariness) on the influence of performance expectancy, effort expectancy, and social influence on behavioral intention and the influence of facilitating condition on technology usage since the previous study did not use the moderator in its research model. Furthermore, the UTAUT model also included some important constructs with high explanations from the previous models to investigate the user's behavioral intention effectively and better than other models. After analyzing the shortcomings of integrated models in the previous study, the UTAUT model is appropriate for investigating factors influencing technology adoption.

3.7. Conclusion

This chapter delineated the concept of ICT adoption, distinguishing it from the broader process of ICT system implementation within organizational settings. It

also examined the stages of ICT adoption and defined how the concept was framed within the context of this study. Furthermore, the chapter critically reviewed relevant theoretical models from previous research, highlighting key limitations in how the previous models have addressed the technology adoption phenomenon. This review showed that various models have sought to explain technology adoption, they exhibited notable shortcomings, particularly when contrasted with the UTAUT model. The chapter emphasized the limitations of these models in fully capturing the complexity and dynamics of ICT adoption. As a result, the UTAUT model is adopted as the foundational framework for this study, given its comprehensive explanatory power. The chapter concluded by summarizing the limitations found in previous models and justifying the selection of UTAUT as more suitable for the study.

Chapter 4: Research Methodology

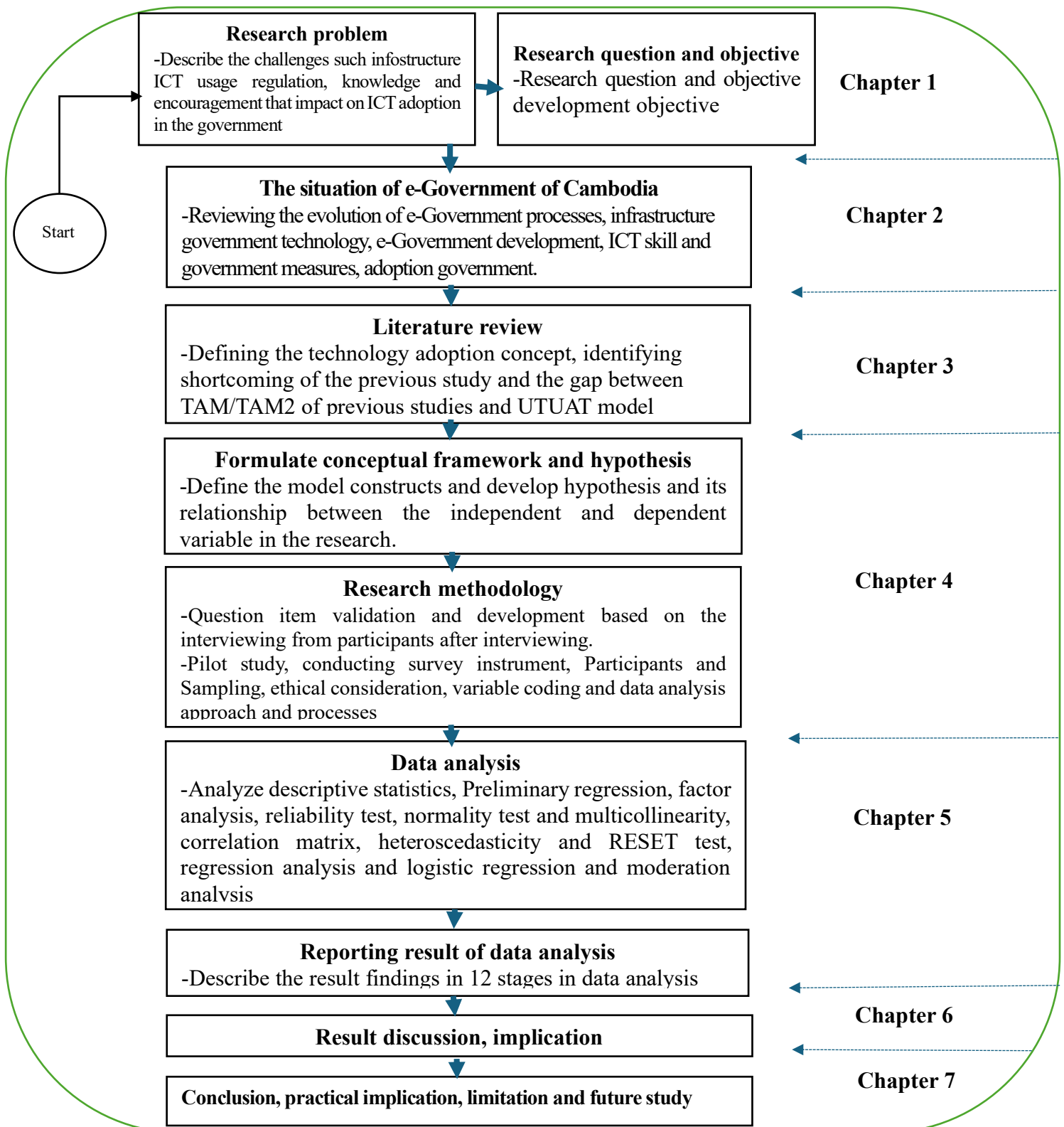
4.1. Introduction

This chapter describes the research methodology used in this research study and details the research procedures. The chapter provide a basic research philosophy, emphasizing positivism while using some aspects of constructivism relevant to developing and validating items. The chapter then elaborates on the design and development of the questionnaire items, including integrating the insights gained from the qualitative data, which reflect participants' perspectives and contribute to refining the measurement tools for constructing the survey. In addition, this chapter describes a pilot study procedure used to assess the validity and reliability of survey instruments. This chapter also explains the survey structure and sampling techniques for data collection. The ethical consideration in the data collection is also overviewed such as the consent, confidentiality. This consideration is considered to ensure the data integrity in the data collection process. The next section will provide an overview of the data analysis procedures in this chapter.

4.2. Research Design

The research design is developed to address research questions and objectives effectively (Mansoori, 2017). According to Mansoori (2017) and Cavana et al. (2001), the research design is a structured set of logical processes or decision-making steps that produce valid and robust research results. It is aligned closely with research objectives and guides the process of answering research questions. This study used a research design to examine the challenges associated with ICT adoption among public servants by identifying the main influencing factors. Figure 4.1 showed the overall research design process as it unfolds through the different chapters of the study. It provided a structured overview of how research design has progressed through different but related phases. These phases included the identification of the research problem, formulating research questions and objectives, literature review, research methodologies, data analysis, reporting results, discussion of findings, recommendations, limitations, future research, and conclusions.

Figure 4.1. *Research Design.*



4.3. Research Philosophy

The positive paradigm²⁰ provides researchers with an objective reality against which to judge their assertions and veracity. It is based on the idea that natural events can be predicted and controlled using existing cause-and-effect patterns. Its primary objective is, therefore, to find patterns. According to Coolican (2004), the idea is that people can rely on their worldview to produce reliable data, that research is non-subjective, and that researchers can be objective when they follow strict methodological guidelines. Because manipulative and experimental methods are more appropriate for addressing the objectives of this study, they were used to ensure that there was no subjective or objective bias. The following characteristics of quantitative approaches as opposed to qualitative approaches would help to resolve hypotheses and answer questions in research through (1) data collection by establishing cause-effect relationships for predictions, (2) the study used primarily positivist paradigm with a quantitative focus but also included qualitative methods, guided by the constructivist paradigm, to validate the UTAUT's items by using deductive method and to develop new items from the participant's perspective through inductive approach (Sabharwal, 2007).

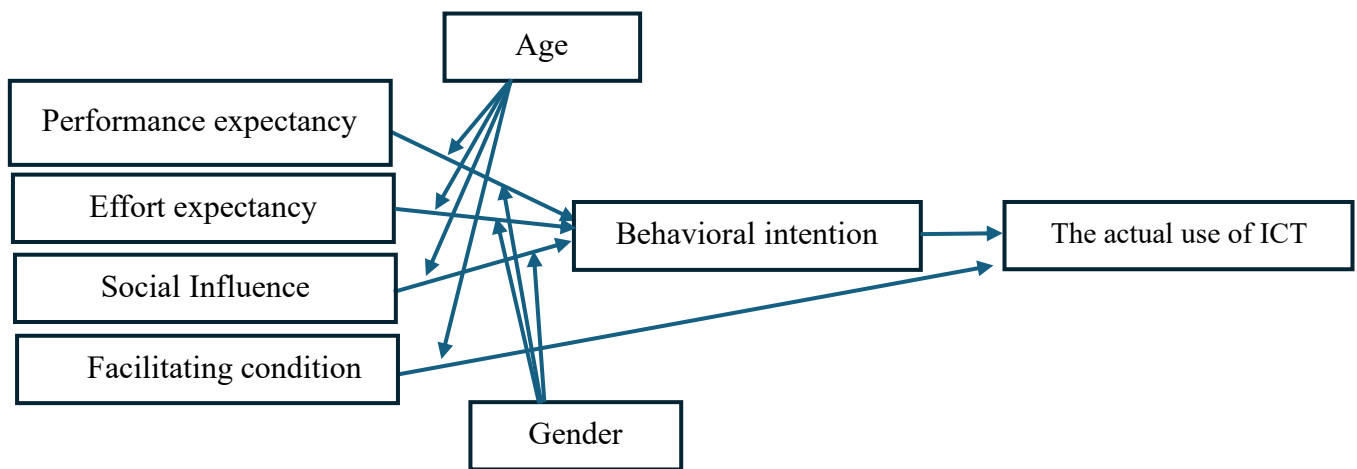
4.4. Conceptual Framework and Hypothesis Development

This study adopted the UTAUT model developed by Venkatesh et al. (2003), which concurs with previous research on ICT adoption. The framework presented in Figure 4.2 is the research model. UTAUT is recognized as a robust model for predicting ICT adoption and explains up to 70 percent of the variation in behavioral intention compared with the previous models (Akgül & Alanya, 2018). It is believed that UTAUT serves as “a benchmark for acceptance literature” and provides a more comprehensive and accurate explanation of user acceptance than previous models (Rosen, 2005). There are many extensive uses of the UTAUT model in previous studies (Al-Shafi, 2009; Suha Alawadhi & Anne Morris, 2008; Bawack &

²⁰ Refer to using an observable social reality to generate generalizations that resemble laws and is related to the philosophical position of the natural scientist (Saunders et al., 2019) and is predicated on several ideas, such as representative epistemology and realist ontology. The realist ontology assumes that there is an immutable reality that can be independently investigated.

Kamdjoug, 2018; Gupta et al., 2008). The UTAUT model is an appropriate model for this study. In addition, the study used age and gender as moderators, which moderate the relationship between independent variables and behavioral intention and the actual use of ICT (Venkatesh et al., 2003). This moderator assumed that their effects are consistent with previous study findings, which suggested that the gender and age of public servants moderate the approach in line with existing scientific work in this area.

Figure 4.2. *The UTAUT Model for ICT Adoption in Cambodia Context*



This research proposed a theoretical framework that includes ICT adoption factors. Performance expectancy, effort expectancy, and social influence influence the behavioral intention to use ICT, and the other two factors, such as the facilitating condition and behavioral intention, influence the actual use of ICT.

Performance Expectancy

Performance Expectancy refers to the extent to which someone believes that using ICT, along with organizational encouragement and perceived benefits (promotion), will enhance their work performance, according to Venkatesh et al. (2003) (Bawack & Kala Kamdjoug, 2018). In Cambodia, promotion and encouragement are also included in the ICT use expectation, which would increase the working productivity when they use ICT. However, Cambodian public servants lack encouragement, technical infrastructure, and ICT skills; these issues hinder them from effectively adopting ICT to improve their working performance.

(Mono, 2021; RGC, 2022, 2024). In addition, public servants are not fully aware of ICT benefits fully. These issues would limit the ICT use in their job. In this context, performance expectancy consists of perceived usefulness, extrinsic motivation, job fit, relative advantage, outcome expectation (Venkatesh et al., 2003), and encouragement and promotion.

Regarding the influence of performance expectancy on the model, it is considered the strongest predictor of behavioral intention in the UTAUT model (Davis, 1989; Kijisanayotin et al., 2009; Kirat Rai et al., 2020b; Venkatesh & Davis, 2000; Venkatesh et al., 2003). Users would be likely to adopt ICT if they believed that using ICT would assist with tasks, reduce workload, and save time. Thus, performance expectancy is considered to significantly influence public servants' intention to use ICT in their roles (Khan et al., 2018).

H1: The performance expectancy will have an influence on behavioral intention.

Effort Expectancy

Effort Expectancy refers to the degree to which someone believes using ICT systems is easy for them and includes both actual usage and the learning process, according to Venkatesh et al. (2003) and Ustun et al. (2023). Cambodian public servants are likely to adopt ICT when the ICT usage tools are perceived as user-friendly, and learning mechanisms make them more confident in using ICT. However, limited digital literacy, a shortage of qualified personnel, lack of encouragement with training, and material support across ministries lead to challenges in using ICT (Mono, 2021; RGC, 2022, 2024). These capacity challenges make it difficult for public servants to use ICT effectively. When public servants assess how easy or difficult ICT is to use, their expectations shape their behavioral intentions to adopt ICT. In general, the construct of effort expectancy is consistent with similar concepts in other models, including perceived ease of use (TAM and IDT) and complexity (MPCU) (Kijisanayotin et al., 2009; Venkatesh et al., 2003). Empirical studies have shown that effort expectancy significantly influences behavioral intention (Ali et al., 2016; David et al., 2003; Davis, 1989; Hoque et al., 2016; Kirat Rai et al., 2020b; Martins et al., 2014; Moore & Benbasat, 1991).

H2: The effort expectancy will have an influence on behavioral intention.

Social Influence

Social influence is defined as the extent to which a user perceives that important people think he or she ought to use the new ICT (Venkatesh et al., 2003). The social influence concept is also consistent with the Cambodian public sector, as public servants' behavior toward using ICT strongly relies on top management directives, according to Venkatesh et al. (2003); Bawack and Kala Kamdjoug (2018). Cambodian public servants also adopt ICT when there is some support from the top management, organization leaders, and government regulation. This support reflects that the public leader has become essential to the e-Government transformation successes (Sokhea & Sophea, 2024). Similarly, many literature studies found that social influence is impacted by the community, peers, or external environment. When using information technology, people are undoubtedly influenced by social networks and community members, including friends, family, and colleagues (Khan et al., 2018). Many scholars have found that social influence is considered a determinant that has an impact on behavioral intention (Ajzen, 1991; Al-Shafi & Weerakkody, 2010; Alshehri et al., 2012; Kijisanayotin et al., 2009; Kirat Rai et al., 2020b; Venkatesh et al., 2003; Zuiderwijk et al., 2015).

H3: The social influence will have an influence on behavioral intention.

Facilitating Condition

Facilitating condition is defined as the extent to which a user believes that the technologies are supported by organizational and technical infrastructure (Venkatesh et al., 2003). Facilitating conditions include not only infrastructure but also training (Bawack & Kala Kamdjoug, 2018), regulatory frameworks (Al-Shafi, 2009), and prior ICT experience (Wang et al., 2017). In the Cambodian public sector, effective ICT use depends on more than technical support—it also requires adequate training, clear regulations, and practical experience. The facilitating condition concept draws from different models: the perceived behavioral control used in the combined Technology Adoption Model and Theory of Plan Behavior model (TAM and TPB), facilitating condition from the MPCU, and compatibility from TPB, TAM, MPCU, and IDT models (Ajzen, 1991; Taylor & Todd, 1995; Venkatesh et al., 2003). For the facilitating condition, the organization and

technological environment are considered as the means to minimize the challenges and barriers that can prevent or hinder the use of ICT (Al-Shafi, 2009). Despite efforts, Cambodia still faces challenges, including limited infrastructure, training, and regulatory support for ICT adoption (ElMassah & Mohieldin, 2020; RGC, 2022). Thus, RGC has invested in ICT as its strategy to strengthen the digital foundation and enhance public administration. Therefore, improving these challenges would increase public servants' ICT adoption (KOICA, 2020), therefore, prior studies also confirm that facilitating conditions significantly influence ICT use (Al-Shafi, 2009; Suha Alawadhi & Anne Morris, 2008; Gupta et al., 2008; Kijisanayotin et al., 2009; Yu, 2012).

H4: The facilitating condition will have an influence on the actual use of ICT.

Behavioral Intention

Behavioral intention is defined as the most vital predictor in ICT use. Behavioral intention describes an individual's willingness to carry out a specific action or behavior (Davis, 1989). In the Cambodian public servant, the individual behavior also makes them use ICT in their job. This concept is also similar to the construct definition developed by Davis (1989) and Venkatesh et al. (2003). According to Ajzen (1991), it has been believed that the intention to use or perform is a good indicator of the behavior itself. It means that the behavioral intention shows the readiness of an individual to adopt a specific behavior. Ajzen also mentions actual behavior that “the respondent manifests itself and is observable in a given situation with a specific target”. According to the UTAUT model, performance expectancy, effort expectancy, social influence, and facilitating conditions are four fundamental constructs that have a major impact on both behavioral intention and actual use of ICT. Higher levels of these constructs are associated with greater intention to use and actual adoption of ICT (Venkatesh et al., 2003). With the construct in this model study, the author hypothesized as follows:

H5: The behavioral intention has an influence on the actual use of ICT.

The Actual Use of ICT

The actual use of ICT is defined as the adoption of ICT in the public servant's job. Behavioral intention has been used with various technology adoption models, which are also mentioned in the TRA and the TPB. Agarwal et al. (2000) also assumed that both the TRA and TPB models come with the idea that behavioral intention influences individual behavior. Some previous studies have found that behavioral intention influences the actual use of technology (Davis, 1989; Venkatesh et al., 2003). Facilitating conditions also influence the actual use of ICT conducted by Kijisanayotin et al. (2009), Gupta et al. (2008), Al-Shafi (2009), Suha Alawadhi and Anne Morris (2008) and (Yu, 2012). In this section, the study will investigate the influence of behavioral intention and facilitating conditions on the actual use of ICT.

Moderating Variable

This research study also used age and gender as moderators in this model because there are some reasons related to the demographic information of Cambodian public servants. According to Mono (2021) and Wijers (2010), the public workforce in Cambodia is seen as aging public servants who have survived the civil war, and some have survived the Khmer Rouge period. Based on this demographic information of public servants, aging public servants might have some limitations in knowledge related to cutting-edge information technology, and aging public servants also have some difficulties monitoring ICT usage due to the ICT complexity (Mono, 2021). Thus, some public servants have capacity limitations in handling ICT in their work. In addition, the exchange of information among aging public servants is not common in Cambodia since those public servants born before 1979 suffered collective trauma (Wijers, 2010). The exchange of information may not come as a surprise in the Cambodian culture for aging public servants. The combination of Cambodia's fragile state and the trauma caused by the Khmer Rouge after the war creates political, cultural, and physical obstacles to the country's integration into the global information society and impacts its "digital

preparedness²¹(James, 2008). Thus, the aging public servant's perception related to social influence on behavior might be sensitive due to the capacity limitation toward ICT usage in this research study. Based on the previous studies and the assumption of the history of Cambodian psychology, age is the moderator that might influence the influence of performance expectancy, effort expectancy, and social influence on behavioral intention. Age also has moderating effects on the influence of the facilitating condition on the actual use of ICT.

In the Cambodian context, gender quality has also become a prominent topic in society. In the Cambodian context, the traditional norms related to gender roles have become an inequality in terms of education. *The Chbap Srei* ²² prevented females from having equality in education. It also influences the woman's ability to handle technology today (Brickell, 2011). According to Duch et al. (2024), gender disparities in ICT study engagement also exist in the Cambodian context. Gender inequality also highlights the cultural and traditional norms that exist to limit women's roles, which lowers women's success rate in the ICT field. In this case, the woman is influenced differently by the social norm regarding ICT perceived ease of use, ease of use, and social influence on ICT use. These differences reflect that gender has a different ICT adoption. These previous studies show that gender has been affected by driven psychological conditions in terms of performance, effort expectancy, and social influence. Thus, this research and previous results related to the gender disparity in the ICT field also exist in the public sector.

Based on this belief, this research examined gender as a moderator in the UTAUT model. This research used gender and age as the moderators in the UTAUT model, which was used to understand the role of age and gender in its moderation on the relationship between each factor and actual use of ICT and behavioral intention toward ICT adoption in the Cambodian context. Venkatesh et al. (2003)

²¹ Digital preparation is determined by the digital skill, which consists of skill, infrastructure (see James J,2008)

²² It is the law referring to teaching women to be quiet and courteous, refrain from using vulgar language, and take care to protect their husbands' feelings and dignity even if they did something in appropriate (see Brickell,2011).

and Wang and Shih (2009) also conducted the moderating prediction of gender on the causal relationship between performance expectancy, effort expectancy, and social influence on behavioral intention, while Venkatesh et al. (2003) also tested the age as a moderator in this research framework as well, which is also consistent with Lian and Yen (2014) focusing on age as a moderator in its UTAUT model.

In the research study, it is believed that gender has moderated these factors. In addition, the moderator also has improved validity of various model adoptions (Venkatesh et al., 2003). Therefore, the author hypothesizes as below:

H₆: Gender will moderate the influence of performance expectancy on behavioral intention

H₇: Gender will moderate the influence of effort expectancy on behavioral intention

H₈: Gender will moderate the influence of social influence on behavioral intention

H₉: Age will moderate the influence of performance expectancy on behavioral intention

H₁₀: Age will moderate the influence of effort expectancy on behavioral intention

H₁₁: Age will moderate the influence of social influence on behavioral intention

H₁₂: Age will moderate the influence of facilitating condition on the actual use of ICT.

4.5. Population

In the past, the World Bank supported ministerial offices in the MoE as the ministry started using computers and the internet to access work in 2005 (Wijers, 2010). At present, the MoE still focuses on ICT use in their work. The DGP 2022-2035 and the CFDES (2021-2035), the national digital framework, were set for all ministries to implement to achieve the e-Government transformation. To implement these national frameworks, the MoE has introduced e-Government as part of its vision of reforming public administration and transforming the digital landscape for all public servants in the MoE through releasing the Circular Strategy on the Environment 2023-2028 to facilitate digital administration further and modernize its functioning. As part of its digital strategy, the MoE has established a digital administrative system and is implementing modern IT to improve the management and distribution of official documents. According to RGC (2023), the MoE has also

introduced new systems for creating, storing, and managing databases to improve the effectiveness of the offices. The ministry has also modernized its infrastructure by providing modern office equipment, including computers, tablets, chairs, and cabinets, to support staff in complying with technical requirements, increasing workload, and managing digital management efficiently. In addition, the ministry is in charge of transportation, office supplies, and IT system maintenance.

According to RGC (2023), the MoE has introduced internal digital systems such as the MoE Admin, MoE Activities, and ICT tools to modernize its administrative functions and support the successful implementation of its strategy. In addition, the MoE is integrating its operations with interministerial systems and ICT tools, including FIMS, HRIS, and SAMIS, to streamline the management of workflows and tasks across ministries. MoE has invested in advanced IT infrastructure to improve efficiency, including hardware such as computers, tablets, scanners, copy machines, software, and servers for technical operations. Communication technologies, email, have also been introduced to improve official communication within the ministry (RGC, 2023).

The national government level, 791 employees and 1632 at the subnational level are permanent public servants based on the GDFA (2025)s' report of the MoE. The MoE public servants use various ICT tools in their daily work. In this context, the study focuses on ICT adoption at the national level. It provides clear recommendations for successfully implementing the MoE's strategy to modernize its administration in line with e-Government policies. The study adopts the UTAUT model for assessing public servants' ICT adoption, as they rely on ICT tools in their daily jobs within the ministry.

4.6. Data Collection

4.6.1. Question Validation and Additional Item Development Processes

The questionnaire was developed to collect accurate and reliable data consistent with the study's objective and the respondents' understanding (Sreejesh et al., 2013). For the question items, the research followed an instrument development approach, moving from qualitative to quantitative methods, with mainly an emphasis on quantitative analysis (Creswell & Clark, 2018). To develop the items, cognitive

interview and content analysis were used to validate the original items from the UTAUT model and to identify new perspectives during the item development process (see Figure 4.3).

To gain a deeper perspective on public servants' ICT use, this study aimed to identify additional items in each factor influencing ICT adoption within the MoE. It followed the exploratory sequential design²³ using the instrument development variant (Subedi, 2016). This method was used to ensure that the questionnaire aligns with the Cambodian context, as the UTAUT model uses many different settings, cultures, and development. To facilitate this process, cognitive interviews were used to collect comprehensive public servants' perspectives on the pretest questionnaire's design, development, and sequencing to refine and validate the UTAUT-based items for clarity and relevance of the questionnaire. This interview used existing UTAUT items (see in Appendix A) with a high level of factor loading (Willis, 2004).

Thus, a semi-structured interview method was chosen to validate the statement items, and eight public servants from informant (INF)1 to informant (INF)8 from the Ministry of Environment (MoE) who voluntarily participated in interviews after completing the survey were selected. All participants have over five years of ICT experience and represent both genders and various general directorates within the MoE.

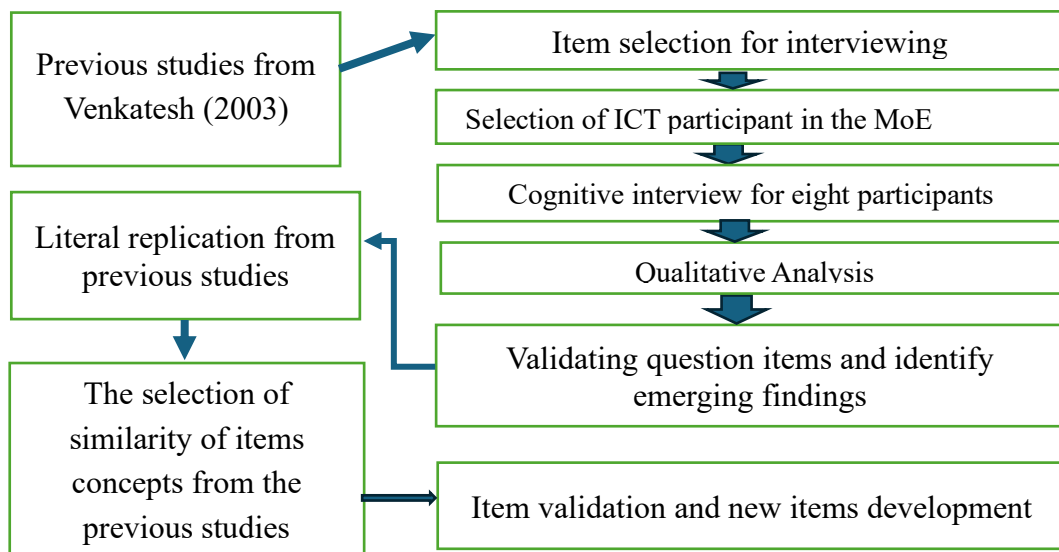
After the interviews, the study used a content analysis approach to analyze the data. First, a deductive method was used to validate each question item in the UTAUT model to ensure consistency between the theoretical constructs and the participants' responses (Hsieh & Shannon, 2005). These validated items were included in a survey format that allows respondents to tick the survey (see Appendix B). In parallel, inductive analysis was used on the open-ended responses to explore participants' unique perspectives from each item in the construct if they have. This validation allowed us to identify additional perspective concepts and insights

²³ Refer to the initial qualitative stage of gathering and analyzing data, which was followed by a quantitative stage that expanded on the first stage's qualitative conclusions (see Braun and Clarke, 2006).

related to each UTAUT factor (see the result of interviewing in Appendix C)(Braun & and Clarke, 2006; Hsieh & Shannon, 2005).

As illustrated in Appendix B, most participants agreed on the statement items in each construct in the UTAUT model. In addition, there were some emerging concept findings from the participants' perspectives, including the importance of *promotion and encouragement* to motivate the use of ICT, *the ease of use associated with learning ICT* as a central factor in effort expectancy, and the impact of the working environment on social influence. Additional concepts of participants, such as *support and resources*, *training*, *consistent experience with ICT*, *government regulations*, and *internet access*, were found for facilitating condition. These findings in Appendix C were used to develop new questionnaire questions that reflect the ICT usage experience and align with the liberal replication²⁴ approach recommended by Rich et al. (2019) . As a result, the final instrument combined the validated items from Venkatesh et al. (2003) and newly developed items informed by participant perspective and previous literature through liberal replication, ensuring contextual relevance and theoretical rigor consistency (see Appendix D. This liberal replication was applied to ensure that the new additional item²⁵ in each construct had a significant influence on its dependent variables.

Figure 4.3. *The Whole Process of Item Validation and Development*



²⁴ Refers to the selection of cases based on their similarities, and they support the theoretical explanation (see Chan & Ngai, 2017)

²⁵ Explanations of how the questions were revised can be found in the footnote of Appendix 4

4.6.2. Pilot Study

After the development of the questionnaire, pilot processes were carried out to improve the questionnaire and avoid errors in the analysis. The author followed the three stages of the piloting technique, such as questionnaire review, cognitive pretest, and small piloting, which were proposed by Dillman (2000) during the questionnaire review (see Table 4.1). During the questionnaire review, First, eight research students and two public servants were invited to review the questionnaire to detect possible spelling errors, ambiguities, and inconsistencies and improve the respondents' understanding prior to surveying. As proposed by García (2011) and Saunders et al. (2019), it would be important to ensure a precise wording of the question, especially when dealing with translations or technical jargon, to reduce distortion and improve validity. As respondents used mainly the Cambodian language, the questionnaire was translated accordingly, but it was also kept in English when respondents had to fill in the English version.

Thus, some questionnaire items were adapted to better reflect the technical concepts and reduce potential misunderstandings based on feedback and recommendations from the respondents in English and Cambodian language. For instance, some respondents had difficulty interpreting specific technical terms during the piloting. Secondly, cognitive pretesting was also used to scrutinize any of the questions' logical, structural, or wording issues before finalizing the questionnaire and collecting large amounts of data.

After revising key terms and pretesting the questionnaires, a pilot test was conducted with 48 respondents to evaluate item reliability, factor loadings, and overall clarity of the study. The results confirmed the questionnaire's suitability for a full-scale survey.

Table 4.1. *Piloting Study Process*

Pilot study	The goals for a pilot study
Eight Research students and two IT users from MoE (N=10)	To refine questionnaire items and review question items based on piloting techniques such as questionnaire review, cognitive pre-test, and small piloting
Pilot study with the MoE's public servants (N=48)	To assess the reliability and factor loading of individual items and to assess the overall clarity and applicability of the model

4.6.3. Survey Instrument

Based on the findings of the pilot study, this research is well-positioned for a thorough assessment of data and theoretical testing in examining ICT adoption among public servants (Creswell, 2011). The online questionnaire was used due to its accessibility, efficiency, and broad reach. It allows for cost-effectiveness and time efficiency. In addition, it allows us to collect data across a large population (Couper, 2000; Siddique, 2023). It can provide more data accuracy in terms of incomplete or duplicate submissions. The questionnaire was particularly designed for ICT-employed public servants in the MoE. The survey design was adopted from Venkatesh et al. (2003) and other previous studies. The questionnaire contains three main parts:

(1) Introduction: outlines the purpose of the study and ethical considerations for the participants.

(2) Demographic information: collected data on gender, age, educational background, ICT experience, job position, and types of ICT use.

(3) Constructs: It featured survey items adapted from previous studies and modified to the Cambodian context (see Appendix E). Items used a seven-point Likert scale (1 = very disagree to 7 = very strongly agree), as adopted from Venkatesh et al. (2003), and suitable for online surveys (Finstad, 2010). A binary (yes or no) answer measures the dependent variable- actual ICT use.

4.6.4. Research Sampling

The study used non-probability sampling. The study used convenient sampling to collect research data. This sampling was conducted for non-probability sampling due to the free effortlessness in the data collection processes (Etikan, 2016). This sampling method would provide the author with collecting the data that meets the criteria and the purpose of research. This method also allowed the author to reach the data easily and in geographical proximity, and data is available at the time given (Etikan, 2016; Zhong & Ouyang, 2010). In this sampling method, the public servants' selection for this study's population is homogeneous, and the result of this study would not be different, random, simple, or straightforward to some inaccessible of the population (Etikan, 2016) since all public servants use ICT as daily work in all the General Directorates under the MoE and the questionnaire did not contain sensitive content,

For this study, the sampling population consists of the eight general directorates of the MoE, where the public servants whose positions are technical staff utilize ICT.

Then, the study selected six of the eight general directorates. Thus, six general directorates were selected, including the General Directorate of Administration and Finance (GDAF), the General Directorate of Environmental Knowledge and Information (GDEKI), the General Directorate of Local Communities (GDLC), the Department of Environmental Impact Assessment (DEIA), the General Secretariat (GS) and the Department of Internal Audit (DIA).

This research study selected the national level, not the subnational level, because the general directors actively use ICT as the main core of e-Government implementation, significantly impacting e-Government implementation success. Their clear strategies concentrate on the national level, which enables the identification of factors influencing ICT adoption compared to the subnational level, while most staff working in the provincial departments at the subnational level are ranger staff whose roles are rangers to protect the forest. Their working role is less engaged with ICT use in the working processes.

The MoE has a total of 791 staff²⁶ working in technical positions in the MoE. However, questionnaires were sent to six general directorates, focusing on 391 respondents²⁷. To ensure comprehensive coverage, a list of participants in a Microsoft Excel file was used to monitor the dissemination of the questionnaire in the various departments of each general directorate. Thus, 292 respondents (74.3 percent) volunteered to respond as the sample size in the online survey. With 292 valid responses obtained from respondents, the response rate was 11:1 for each variable. It would be appropriate for this study within the recommended range since Comrey and Lee (1992) suggested that a sample of 1,000 should be considered excellent, 500 very good, 300 good, 200 average, and 100 poor. Similarly, Nunnally (1978) recommends a 10:1 ratio for variables, whereas (Field, 2000) recommends a 10:1 ratio for variables.

To obtain the data result above, the data collection process lasted from 28 October 2024 to 28 November 2024 and took place in a voluntary and stress-free environment within the study scope. The following preparatory steps have been taken prior to the start of the survey to ensure a smooth procedure: questionnaire development and approval. The questionnaire has been developed and approved by the supervisor. After that, the author received an agreement from the MoE, which formally approved the survey among the selected general directorates in the ministry. Questionnaires were then sent to the representatives of the planning and administrative departments of each General Directorate. An online questionnaire was distributed to each department via a Telegram application group with a list of names in Excel. This structured approach ensured that the survey was effectively managed and reached its intended participants while maintaining research ethics.

4.7. Ethical Considerations

The key ethical component of this study was obtaining informed consent. The first page of the survey contained a consent form describing the study's purpose, the

²⁶ The whole number of public servants that work as technical public servants in the eight general directorates based on the public servants in the MoE in 2025 (see GDAF., 2005).

²⁷ The whole number of public servants that work as technical public servants in the six general directorates based on the public servants in the MoE in 2025 (see GDAF., 2005).

participant's rights, and the contact details for further inquiries. The response was voluntary, and participants had the right to withdraw at any time or to review responses before final submission. To ensure accessibility, the survey was available in English and Cambodian. Respondents were advised to answer honestly while avoiding personal identifiers to preserve anonymity. The confidentiality was strictly respected, and participants received an email confirming the submission and a note of appreciation after it had been completed.

4.8. Variable Coding

4.8.1. Demographic Information Coding

In this study, age and gender were used as moderating variables to analyze performance expectancy, effort expectancy, and social influence on behavior intention. The demographic data, including gender, age range, educational level, position, ICT usage experience, and ICT usage type, were coded to transfer into SPSS. The gender codes were female = 1 and male = 0. Age was categorized into four groups (18-29 = 1, 30-39 = 2, 40-49 = 3, 50+ = 4). The education level was classified as follows: high school diploma = 1, associate degree = 2, bachelor's degree = 3, master's degree = 4, Ph.D. degree = 5, Other = 6. The position was classified into nine categories: contract staff = 1, officials = 2, deputy chief of office = 3, chief of office = 4, deputy chief director = 5, director = 6, deputy general director = 7, general director = 8, and other = 9. ICT types were grouped into four categories: Microsoft Office applications = 1, hardware (e.g., computers, scanners, copiers, tablets, and telephones) = 2, internal applications (e.g., MoE Admin, SARMIS, HRMIS, FMIS, and other technical software) = 3, and other ICT tools = 4

4.8.2. Coding of Dependent and Independent Variables

In this study, the dependent variable representing actual use of ICT was treated as a dummy variable. The survey included the question: ***Do you accept the use of ICT in your job?***. Responses were coded as follows: Yes, I accept = 1, No, I do not accept = 0. Independent variables were measured using a seven-point Likert scale, adapted from Venkatesh et al. (2003) and other previous studies. The response options were coded as follows: Very strongly disagree = 1, Strongly disagree = 2, Disagree = 3, Neutral = 4, Agree = 5, Strongly agree = 6, Very strongly agree = 7.

This coding system facilitated a structured approach to data analysis, allowing effective statistical exploration of the relationship between constructs.

4.9. Data Analysis Approach

Hair, Black, Babin, Anderson, et al. (2010) stresses the importance of identifying suitable analytical methods in advance to ensure the accuracy and relevance of data collection. This method identification is crucial; otherwise, the data collected may not be suitable for the data analysis approach chosen. In this research study, research hypotheses were used to confirm or reject to investigate the relationship between independent and dependent variables. Therefore, the SPSS was used for data analysis.

4.9.1. Data Analysis Processes

Kritzer (1996) defines “*interpretation as the process of ascertaining the meaning(s) and implication(s) of a set of materials.*” This study used different stage data analysis processes to analyze data and test the research model effectively. It started with a demographic analysis using descriptive statistics, followed by a preliminary regression analysis to identify outliers. The Kaiser Mayer-Olkin (KMO) and Bartlett tests were used to ensure sampling adequacy for factor analysis. Factor analysis was then conducted using principal component analysis with varimax rotation. Furthermore, the reliability test was evaluated using Cronbach's alpha, and matrix correlation analysis confirmed the relationship between variables and the feasibility of regression. Normality and multicollinearity were checked using the VIF method. After that, a heteroscedasticity test (White test) was conducted, and if necessary, regression with robust standard errors was used. Then, the RESET test was conducted to confirm the proper model specification. Consequently, the analysis proceeded in three main stages after testing the suitability of the data as follows:

4.9.2. Multiple Regression Analysis.

This multiple regression was conducted to examine the influence of performance expectancy, effort expectancy, and social influence on behavioral intention.

$BI_i = \beta_0 + \beta_1 PE_i + \beta_2 EE_i + \beta_3 SI_i + \epsilon_i$ where, BI = behavioral intention, PE= Performance Expectancy, EE= effort expectancy, SI= social influence, ϵ_i = Error Term

4.9.3. Logistic Regression Analysis

This logistic regression was conducted to assess the impact of behavioral intention and facilitating conditions on actual ICT use.

$UIC T_i = \beta_0 + \beta_1 BI_i + \beta_2 FC_i + \epsilon_i$ where: $UIC T_i$ = Actual Use of ICT (Binary variable), BI = behavioral intention, FC = Facilitating Conditions, ϵ_i = Error Term. This structured data analysis approach ensured that all necessary statistical tests and techniques are applied to validate the research findings.

4.9.4. Moderating Analysis

In a moderating regression analysis, the moderator variable (e.g., age or gender) was multiplied by the independent variable (e.g., performance expectancy) to establish an interaction term (e.g., $PE \times \text{age/gender}$). This interaction term was included in the hierarchical regression model to assess whether the moderator influences the relationship between the independent and dependent variables in the interaction model.

Step 1 (Basic Model): comprises the moderator and the independent variable.

The first-order effect for PE: $BI_i = \beta_0 + \beta_1 PE + \beta_2 x$

The first-order effect for EE: $BI_i = \beta_0 + \beta_3 EE + \beta_4 x$

The first-order effect for SI: $BI_i = \beta_0 + \beta_5 SI + \beta_6 x$

The first-order effect for FC: $BI_i = \beta_0 + \beta_5 FC + \beta_6 x$

Step 2 (Interaction Model/hierarchical regression model): This model includes the interaction term to examine the moderator effect on the relationship between the independent and dependent variables.

Interaction model for PE: $BI_i = \beta_0 + \beta_1 PE + \beta_2 x + \beta_3 PE x$

Interaction model for EE: $BI_i = \beta_0 + \beta_3 EE + \beta_4 x + \beta_3 EE x$

The interaction model for SI: $BI_i = \beta_0 + \beta_5 SI + \beta_6 x + \beta_3 SI x$

The interaction model for FC: $BI_i = \beta_0 + \beta_5 FC + \beta_6 x + \beta_3 FC x$

To test the interaction effect of moderators (such as age and gender) on independent and dependent variables in the UTAUT model above, this study used PROCESS v4 by Andrew F. Hayes, a robust tool integrated with SPSS that is widely used in behavioral science for moderation analysis.

4.10. Conclusion

This chapter outlined the research concept and explained in detail the methodology and procedures used in the study. This chapter began with a discussion of the philosophy of research, which was primarily positivist but also incorporated elements of constructivism to support the development of other item measurement. These items were derived from participants' perspectives and complemented by validated items adapted from previous studies, as well as the study by Venkatesh et al. (2003). The study took a predominantly quantitative approach. This chapter developed a conceptual framework that identified independent and dependent variables and hypothesis development from each construct relationship. A systematic and structured approach was emphasized to ensure that the methodology was consistent with academic standards. This approach included strict procedures to maintain the validity of the questions through comprehensive design, cognitive pretesting, and questionnaire piloting. In addition, this chapter dealt with ethical considerations taken to preserve academic integrity in data collection. It also detailed the data collection procedures and described the data analysis phases to support and validate the research findings. This chapter was a thorough and methodological overview of all research practices. The next chapter will focus on presenting and analyzing research findings using the methods.

Chapter 5: Research Finding

5.1. Introduction

The previous chapter details the questionnaire development used for data collection, including the pilot study procedures, survey instrument design, sampling method, sample size determination, ethical considerations, and the overall analytical framework. This chapter presents the data analysis based on responses from 292 participants. Various statistical techniques are employed in this analysis. First, descriptive statistics are conducted to summarize the basic characteristics of the data. Then, preliminary regression analysis is performed to identify and address potential outliers to reduce the risk of biased estimations.

The reliability and validity of the survey instrument are assessed using Cronbach's alpha and construct validity measures. Before conducting regression estimations, several diagnostic tests are undertaken to ensure the robustness of the findings. These included tests for heteroscedasticity, model specification, correlation matrix analysis, normality, and multicollinearity. Following these diagnostics, multiple regression and logistic regression are analyzed. In addition, moderation analysis is carried out. Moderation analysis is used to examine the moderating effects of age and gender on the relationships between behavioral intention and facilitating conditions, as well as the moderating effects of age and gender on the relationships between performance expectancy, effort expectancy, and social influence.

5.2. Descriptive Results

Table 5.1 shows the respondents' demographic information, including gender, age range, level of education, ICT experience, and the type of ICT tools. All this information are the respondents' background in the first part of the questionnaire to give a more precise background of the respondents' profiles.

There were 185 men, accounting for 63.4%, and 107 women, accounting for 36.6% of the respondents. This result shows that the number of male respondents was higher than that of women.

For the age range, 126 respondents were 30–39, accounting for 43.2%, which was the highest number of respondents in the group age, followed by 62

respondents aged 18-29 years old, accounting for 21.2%. 59 respondents were 40-49 years old, accounting for 20.2%, while 45 respondents, the lowest rate of respondents, were more than 50 years old.

For education level, 167 respondents held a bachelor's degree, accounting for 57%, followed by 113 respondents held a master's degree, accounting for 38.7%. Seven respondents held a PhD degree, accounting for 2.4%, while one respondent, accounting for 0.3%, had a high school diploma.

For the position level, 97 respondents were the most respondents with a position as the chief of office, accounting for 33.2%, followed by 71 respondents who were in the officer position, accounting for 24.4%. The 49 respondents were chiefs of offices, accounting for 16.8%. There were 27 respondents having positions as contract staff, accounting for 9.2%. Four respondents had positions as directors, accounting for 1.4%. In comparison, the two respondents, while a minority of respondents, had positions as the vice general director, accounting for 0.7%, and four respondents had other positions, accounting for 1.3%.

For ICT experience, 101 respondents, accounting for 34%, had ICT experience from 5-9 years, followed by 81 respondents, accounting for 27.7%. 67 respondents, accounting for 22.9%, had ICT experience from 10 to 19 years. There were 37 respondents, accounting for 12.7%, with experience from 20 to 29 years old. Six respondents, accounting for 2.1%, had ICT experience only 30 years above.

Table 5.1. *Demographic Information*

Variable	Number of Respondents	Percent (%)
<i>Gender</i>		
Male	185	63.4%
Female	107	36.6%
<i>Age</i>		
18-29 years	62	21.2%
30-39 years	126	43.2%
40-49 years	59	20.2%

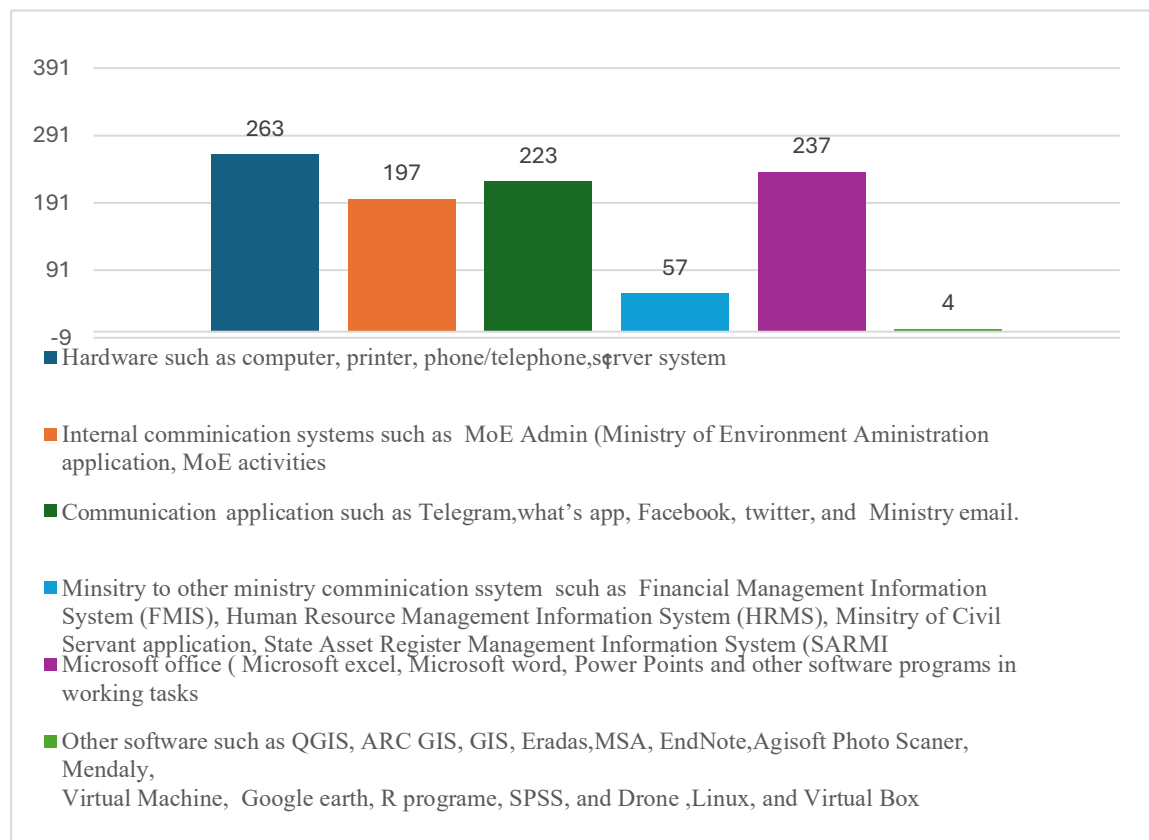
Variable	Number of Respondents	Percent (%)
50 years	45	15.4%
<i>Level of Education</i>		
High school diploma	1	0.3%
Associate bachelor's degree	4	4%
Bachelor's degree	167	57%
Master's degree	113	38.7%
PhD degree	7	2.4%
<i>Position</i>		
Contract staff	27	9.2%
Official	71	24.4%
Vice Chief of office	97	33.2%
Chief of office	49	16.8%
Vice director	38	13%
Director	4	1.4%
Vice general director	2	0.7%
Other position	4	1.3%
<i>ICT experience</i>		
Less than 5 years	81	27.7%
5-9 years	101	34.6%
10-19 years	67	22.9%
20- 29 years	37	12.7%
30 years above	6	2.1%

The Type of Public Servant ICT Use in their Job

Figure 5.1 shows that 263 public servants used hardware such as computers, telephones/phones to do their work. In addition, 237 public servants for Microsoft Office, such as Microsoft Word, PowerPoint, Excel, and other software programs, were selected to do their jobs. 223 public servants used communication channels

such as Telegram, Messenger, WhatsApp, Facebook, Twitter, and email's ministry for their communication in their work, while the 197 public servants used internal systems such as the Ministry of Environment Administrative application (MoE Admin) and MoE Activities for monitoring in their jobs. Nevertheless, 57 public servants used external systems such as the FMIS, Human Resource Management Information System (HRMS), Ministry of Civil Servant application, and SARMIS. Only four public servants used other ICT tools such as QGIS, Arc GIS, GIS, Eradas, MSA, Endnote, Agisoft Photo Scanner, Mendeley, Virtual Machine, Google Earth, R program, SPS, drone, Linux, and virtual box.

Figure 5.1. *The Type of ICT Use*

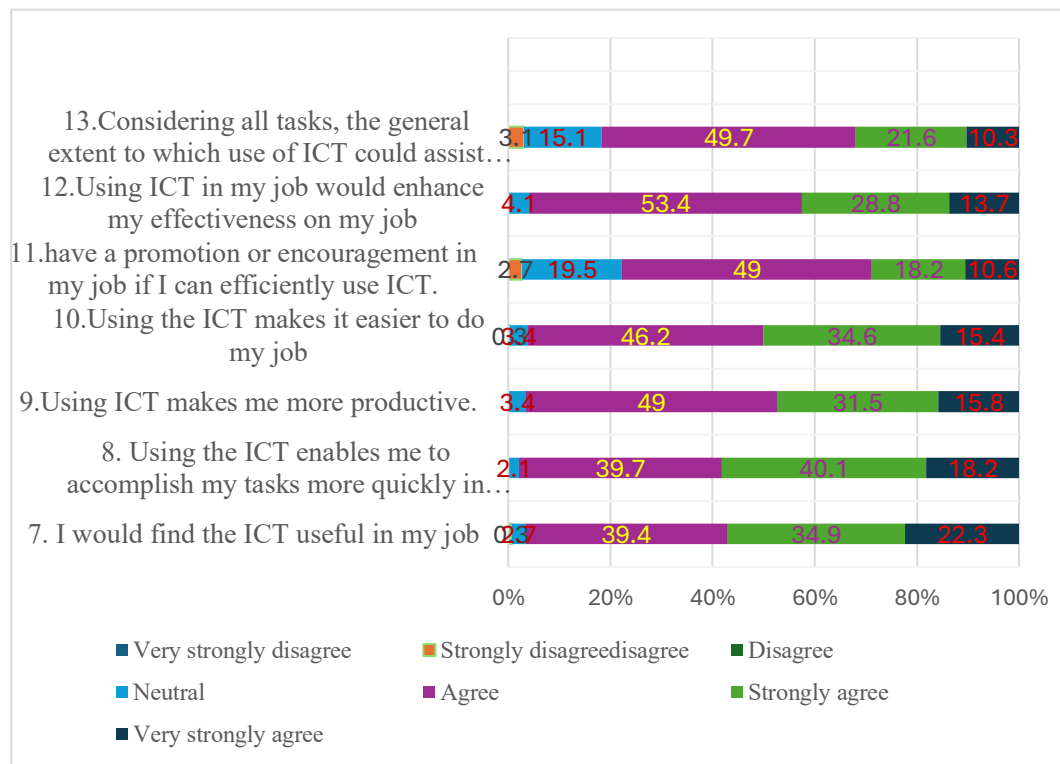


Performance Expectancy

Figure 5.2 shows that public servants' perceptions of the role of ICT in enhancing their job performance. The result shows that most respondents expressed positive attitudes toward ICT, with responses ranging from "fairly agree" to "strongly agree" across the seven question items. 53.4% of public servants agreed that ICT enhanced

job effectiveness. Moreover, 49.7% of respondents agreed that ICT supported them in accomplishing various tasks, while 49% believed that ICT improved productivity and that proficiency in ICT should be promoted and encouraged in the workplace. Furthermore, 46.2% agreed that ICT makes their work easier, and 39.7% reported that ICT enabled them to accomplish tasks more efficiently. In addition, 49.4% of public servants found ICT was useful in their jobs.

Figure 5.2. *Performance Expectancy*



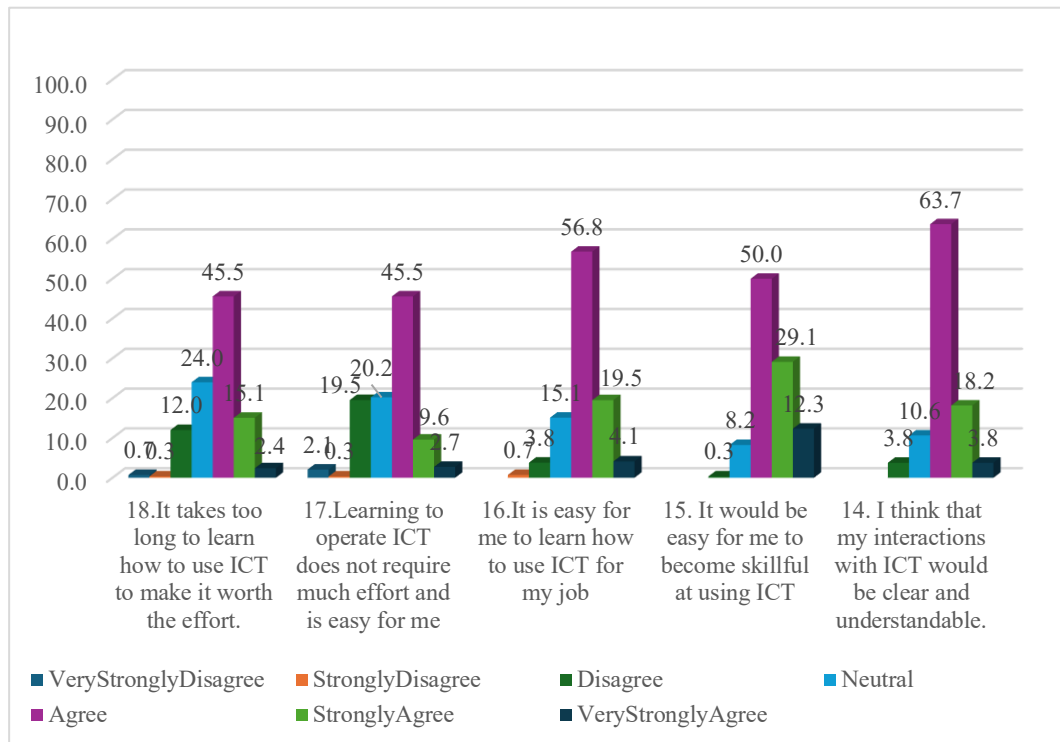
Note: this item's information can be found in the questionnaire in Appendix G

Effort Expectancy

Figure 5.3 presents public servants' perceptions of the ease of using ICT in their jobs. The result indicates that most public servants who used ICT responded with "fairly agree" to "strongly agree" across the five question items, suggesting that they generally found ICT tools easy to use. Specifically, 63.7% of respondents agreed that their interaction with ICT tools was clear and understandable. Additionally, 56.8% agreed that ICT was easy for them to learn how to use ICT for their job, while 50% believed that ICT would had been easy for them to become skillful at using ICT. However, only 45.5% agreed with both questions that learning

to operate ICT did not require much effort and was easy for them, and it took too long to learn how to use ICT to make it worth the effort.

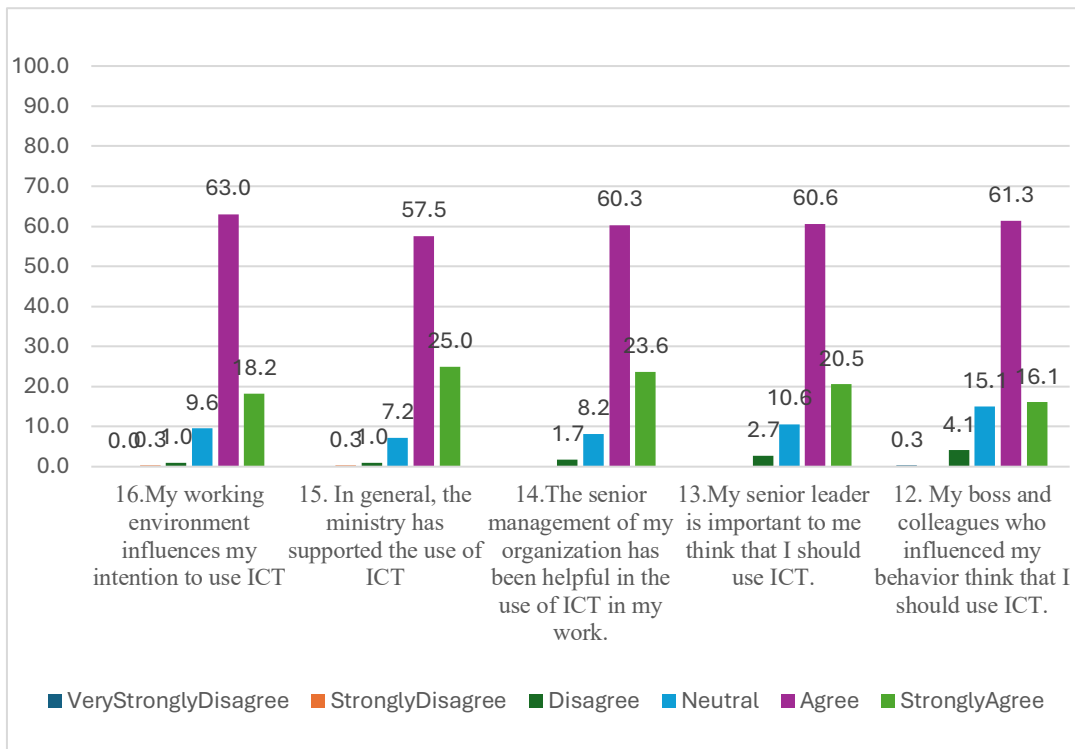
Figure 5.3. *Effort Expectancy*



Social Influence

Figure 5.4 illustrates public servants' perceptions of the extent to which others must believe they should have used the ICT system. The result indicates that most public servants who used ICT responded with "fairly agree" to "strongly agree" across the five question items. This result shows that public servants recognized the importance of others' expectations regarding ICT use. In addition, 63% agreed that the working environment influenced their intention to use ICT, while 61.3% agreed that their boss and colleagues who influenced their behavior think that they should have used ICT. Furthermore, 60.3% of respondents acknowledged that their senior leader's opinion was important in shaping their ICT use. A comparable proportion (60.3% and 60.6%) agreed that the senior management of their organization had been helpful in the use of ICT in their work, and their senior leaders were important to them to think that they should use ICT, respectively. Lastly, 57.5% of respondents agreed that, in general, the ministry had supported the use of ICT.

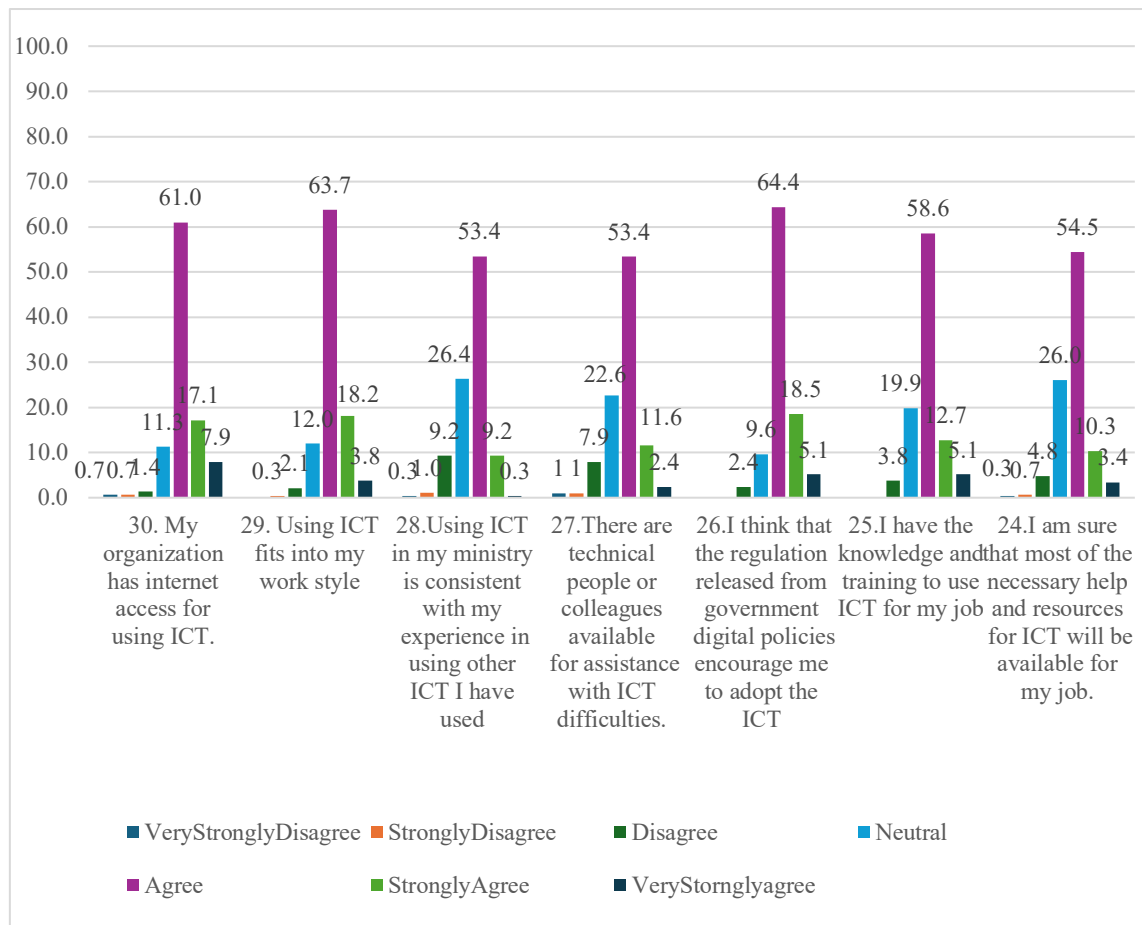
Figure 5.4. Social Influence



Facilitating Condition

Figure 5.5 illustrates that many public servants who used ICT responded with "fairly agree" to "strongly agree" across the seven question items. This result shows a consensus among public servants that adequate ICT tools, technical support, and infrastructure were available to facilitate ICT use in their work. 64.4% of respondents agreed that government digital policies encouraged them to adopt ICT. Similarly, 63.7% indicate that the ICT they used aligns with their job requirements. Additionally, 61% acknowledged that their organization provided internet access for ICT use. Furthermore, 58.6% and 54.5% agreed that they had the knowledge and training to use ICT for their job, and most of the necessary help and resources for ICT would be available for their job. For the same proportion, the percentage of respondents, 53.4%, agreed that using ICT in their ministry was consistent with their experience in using other ICT they used and that there were technical people or colleagues available for assistance with ICT difficulties.

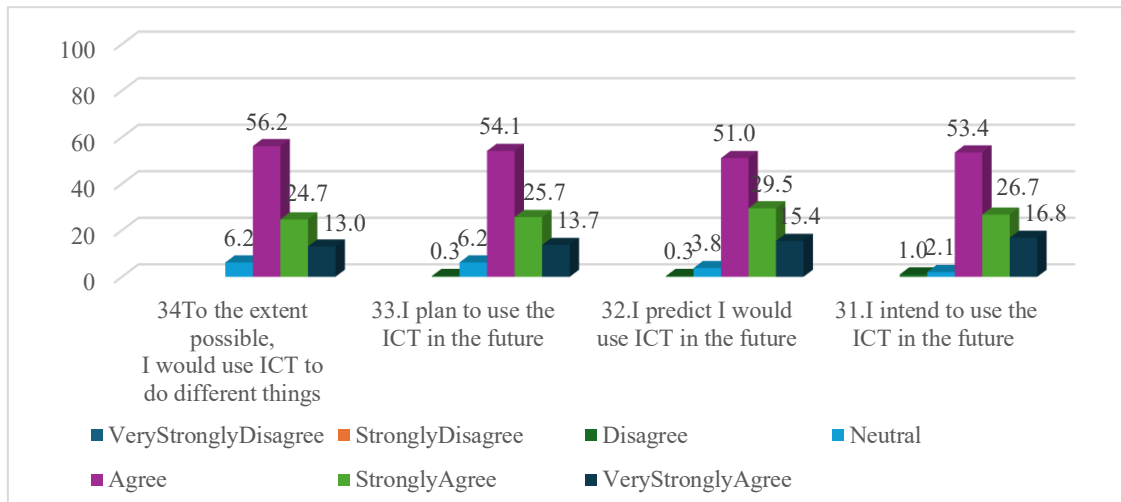
Figure 5.5. Facilitating Condition



Behavioral Intention

Figure 5.6 illustrates that most public servants who used ICT responded with “fairly agree” to “strongly agree” across the four question items. This indicates that public servants generally expressed a willingness to adopt ICT in their work. Particularly, 56.2 % of respondents agreed that to the extent possible, they would use ICT to do different things. Additionally, 54.1% and 53.4% agreed that they planned to use ICT in the future and intended to use ICT in the future, while only 51% agreed that they predicted that they would use ICT in the future.

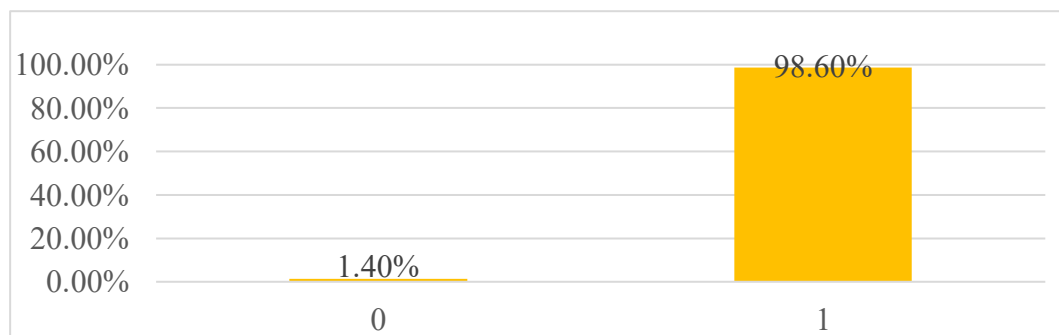
Figure 5.6.*Behavioral Intention*



The Actual Use of ICT

Figure 5.7 shows that 288 respondents, accounting for 98.6%, agreed that they accepted ICT in their jobs, while only four respondents, accounting for 1.6%, answered that they did not accept ICT in their jobs.

Figure 5.7.*ICT Type Used in the Job*



5.3. Checking Assumptions

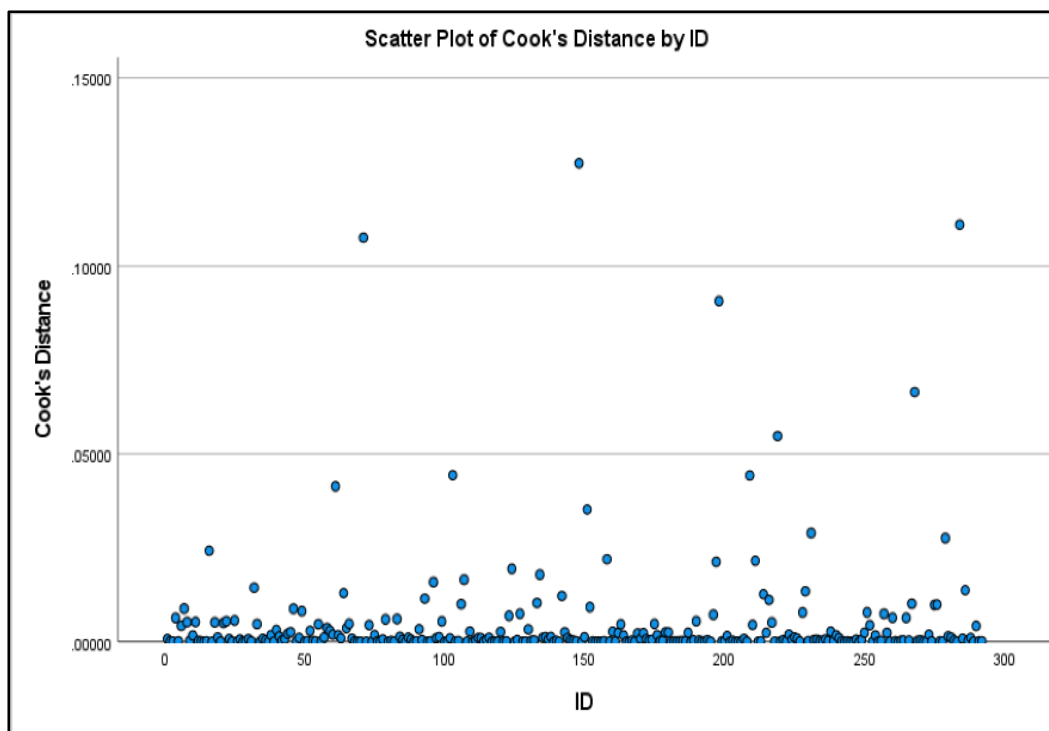
5.3.1. Cook's Distance

In this data, there are some outliers with large residuals, which challenge the models' assumption. It also influences the result of regression. Thus, Cook's distance method was used to identify the unusual data points to obtain the potential outlier in the dataset. The sample with a Cook's distance greater than one is considered an influential outlier and would be removed from the dataset.

Based on the results, the respondents in ID 1, 4, and 6 had a high leverage value exceeding the threshold determinant, which had a high effect on the regression result model.

As a result, the respondents with ID 1,4,6 were removed from the dataset. Thus, 289 respondents remained usable in the data set for analysis. Additionally, the scatterplot (see Figure 5.8) highlights data points with high leverage, further supporting the identification of potential outliers.

Figure 5.8. *Cook Distance Diagnostic*



5.3.2. The Assumption of KMO, Bartlett's Test for Factor Analysis.

Another condition was checked before conducting the factor analysis to determine whether the quantity of data was adequate for factor analysis. Thus, the KMO²⁸ and variable were examined for a relationship using the Bartlett Sphericity Test. Table 5.2 shows that the KMO was 0.926, and Bartlett's Test of Sphericity and $\chi^2(df = 378) = 5219.465$, $p = 0.000 < 0.001$. Therefore, it was demonstrated that the data from the sample was suitable for the factor analysis.

²⁸ Refer to the measurement of sampling adequacy to check the excessive correlation

Table 5.2. *KMO and Bartlett's Test*

KMO and Bartlett's Test		
KMO Measure of Sampling Adequacy.		0.926
Bartlett's Test of Sphericity	Approx. Chi-Square	5219.465
	Df	378
	Sig.	0.000

5.3.3. Factor Analysis

Component matrix analysis was conducted to check the suitability of the rotation method. The most reliable psychometric method is principal component analysis (CPA)(Stevens & Pituch, 1996). CPA is the best method for factorization techniques. In alignment with this rationale, the principal component analysis with the varimax method was used as the factorization technique for this study. This CPA with the varimax method is conducted to interpret the factor in the factor analysis. In addition, it is also used to maximize the variance of squared loadings within each factor, which also makes the factor structure more distinct (Schreiber, 2021).

The question items of 28 items had a factor loading of 0.4 or above, while a factor loading less than 0.4 would be suppressed from the output (Mansoori et al., 2018). Six items had significant cross-loading: the EE2, which should be loaded to only EE, has cross-loading to PE. SI3, SI4, and SI5 were supposed to load to the SI, but those items were loaded to the other factor, FC. EE5 should be removed to ensure a clear grouping among factors. Thus, the result indicated that some items (SI3, SI4, SI5, FC6, EE5, and EE2) loading produces unclear factor structure in the model (See Appendix E). To ensure that the items were within the specific factor, the items (SI3, SI4, SI5, FC6, EE5, and EE2) should be removed to ensure apparent items into factors that could represent the theoretical model. After the items' removal, 22 items were grouped with specific factors (see Figure 5.3).

It also noted that there was an improvement in the accumulative percentage, which increased from 64.19% to 69.437%, enabling us to capture the information and reduce the complexity of factors while keeping most of the critical information in data and providing a better explanation for estimation and accurate representation of the data in the regression. The author used only 22 items for regression analysis

for the next section. The decision to use 22 items for regression analysis was made because some items were deleted since those items were not present in the data, even though some items were chosen from previous studies with high loading, which is also identified by Venkatesh et al. (2003) in the analysis (see Table5.3).

Table 5.3. *Factor Rotation*

Component	PE	BI	FC	EE	SI	Communality
PE3	0.849					0.826
PE4	0.835					0.824
PE2	0.829					0.815
PE6	0.745					0.763
PE1	0.720	0.407				0.711
PE7	0.585			0.494		0.657
PE5	0.485					0.492
BI1		0.854				0.862
BI3		0.853				0.849
BI2		0.853				0.872
BI4		0.837				0.832
FC4			0.716			0.544
FC5			0.677			0.609
FC1			0.656			0.556
FC3			0.617			0.587
FC7			0.617			0.467
FC2			0.533			0.490
EE4				0.825		0.711
EE3				0.647		0.625
EE1				0.558		0.620
SI2					0.804	0.808
SI1					0.782	0.754
% eigenvalue (Total=15.276)	8.897	2.452	1.849	1.047	1.031	
% Variance Total =69.43%)	20.787	37.507	50.284	59.915	69.437	

Notes: Extraction method: Principal Component Analysis; Rotation method: Varimax with Kaiser Normalization

The dataset's suitability for factor analysis was assessed through the Bartlett test and the KMO value calculation (Ustun et al., 2023). The result shows that overall KMO had a value of 0.913 while the recommended KMO should be greater than 0.5 (Hair et al., 2014). The results of Barlett's test of sphericity were used to test the null hypothesis, and the matrix is the original correlation matrix. The results

of Barlett's test shows that there was a significant amount of common variance among the survey items ($\chi^2(df = 231) = 4131.40, p = 0.000$).

It also indicates that this model extracted five factors, of which the cumulative variance explained 69.43%. To examine how well the model is, the individual items' commonalities (the result of the squares of the loading on each factor) are the indicators for each item. The commonality of an item can be viewed as regression, which indicates the proportion of the item's variance that all the retained factors can explain. For this research, the acceptable communality value was determined by 0.2 above, which was suggested by Schreiber (2021).

As shown in Table 5.3, the commonalities of all items were above 0.45, further supporting the overall assessment of the model's performance. The factors that were used in this research model were behavioral intention, performance expectancy, facilitating condition, social influence, and effort expectancy.

Based on the variance and factor loading in each dimension in Table 5.3 above, the first dimension, performance expectancy, explained 20.78% of the variance, and this dimension consists of seven items with factor loadings from 0.485 to 0.849. The second dimension, behavioral intention, accounted for 37.51% of the variance, and the dimension consisted of four items with a factor loading from 0.837 to 0.854.

The third dimension, facilitating conditions, explained 50.28% of the variance and comprised six items, with factor loadings ranging from 0.533 to 0.716.

The fourth dimension, also categorized under effort expectancy, accounted for 59.92% of the variance, and this dimension consisted of three items, with factors loading ranging from 0.558 to 0.825.

The final dimension, again under social influence, explained 69.44% of the variance and included three items, with factor loadings ranging from 0.782 to 0.804. In the factor analysis, social influence consisted of two items that are acceptable to determine the clear operational definition of the latent factor and the theoretical development, even though there could be model identification problems (Schreiber, 2021).

5.3.4. The Analysis of Reliability and Internal Consistency

The reliability test was used to check the internal consistency of six latent variables. In this case, all question items correlate to the latent variable, meaning the survey represents a single factor. According to Hair, Black, Babin and Anderson (2010), reliability is the "assessment of the degree of consistency between multiple measurements of a variable." Thus, the research used Cronbach's alpha to test the construct consistency. The reliability characteristics also defined the variability of respondents to the survey, and it also led to receiving different responses. The coefficient is defined as the degree to which responses are consistent across the items within a single measure. The Cronbach alpha coefficient measured the reliability of the survey and construct consistency (Hinton et al., 2004; Ros, 2006). The reliability of Cronbach alpha is divided into different levels: excellent reliability (0.90-above), high reliability (0.70-0.90), moderate reliability (0.50-0.70), and poor reliability (0.50- below).

Table 5.4 presents reliability statistics that measured the internal consistency of each construct in the UTAUT model. Each variable is the result of grouping from all items in each variable. Each variable of the UTAUT model constructs was high, exceeding the 0.6 cut-off recommended by Hair et al. (2009). The Cronbach alpha value estimated that the performance expectancy scale was 0.911, the effort expectancy scale was 0.678, the social influence scale was 0.835, and the facilitating condition scale was 0.772. For the reliability of the dependent variable, the behavioral intention was 0.945. Based on the Cronbach alpha result above, Table 5.4 shows that all constructs' reliability values were higher than 0.60. Therefore, all constructs in this model have highly reliable instruments.

In addition, KMO also is conducted to test the validity. It is used to measure sampling adequacy. Furthermore, KMO has a value from zero to one. In this case, the KMO index equal one. Thus, the factoring of the items can be applied. In contrast, KMO equals zero. This means that the factors and the question items are irrelevant, and the KMO index, which is generally accepted, should be more than 0.5 (Hair et al., 2014).

As the final factor loading in the factor analysis is shown in Table 5.4, it is noted that Cronbach's alpha of effort expectancy increased. At the same time, the Cronbach alpha values for social influence and facilitating condition remained almost unchanged despite removing question items. However, this significantly shows that social influence and facilitating condition remained reliable among the respondents' answers (this means that the respondents' answers were not too different perception regarding the survey) since Cronbach alpha was above 0.6 and the overall reliability of KMO values for each factor remained above 0.5 while the value of KMO of 0.5 is acceptable (Hair et al., 2014).

Table 5.4. *Reliability Test Results*

Construct	Items extracted from 28 items			Items extracted from 22 items		
	Items	Cronbach alpha	KMO	Items	Cronbach alpha	KMO
Performance Expectancy	7	0.911	0.91	7	0.911	0.910
Effort Expectancy	5	0.659	0.722	3	0.678	0.614
Social Influence	5	0.840	0.790	2	0.835	0.50
Facilitating Condition	7	0.802	0.821	6	0.772	0.813
Behavioral Intention	4	0.945	0.815	4	0.945	0.815

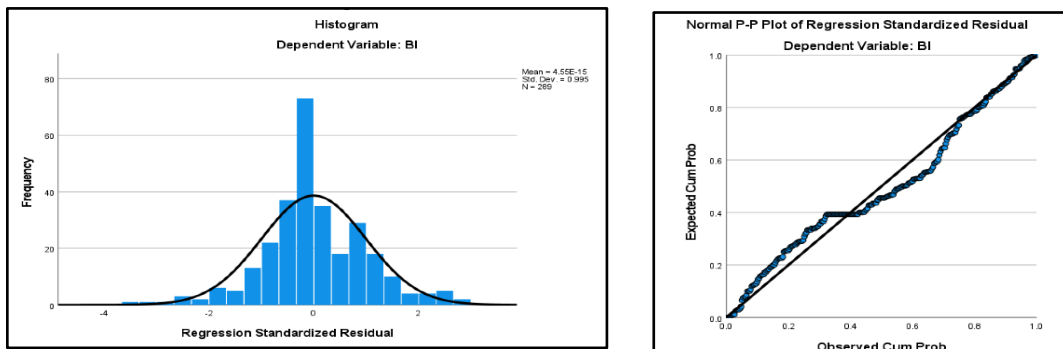
5.3.5. Normal Distribution Test.

The normality assumption used to ensure the data is suitable for linear regression analysis. The normality of residuals is evaluated through visual inspection of the histogram of regression standardized residuals and the normal P-P plot of regression standardized residuals.

Figure 5.9 shows that the mean of behavioral intention was 9.54 E-15, and the standard deviation (SD = 0.988) was approximately one. The histogram displays a symmetric bell-shaped distribution centered around zero, indicating that the residuals followed a normal distribution. Additionally, the P-P plot shows that the data points aligned closely with the straight line, suggesting normality and a linear relationship between the dependent and independent variables.

Based on these visualizations, the author proceeded to other assumptions with Variance Inflation Factor, Correlation Matrix and a Heteroscedasticity check before conducting the regression analysis to investigate the influence of performance expectancy, effort expectancy, and social influence influence on behavioral intention.

Figure 5.9. Normality Diagnostic of the Residuals



5.3.6. Variance Inflation Factor (VIF)

The regression analysis is conducted to assess multicollinearity due to its potential to distort predictions within the regression model. To detect multicollinearity, Myers (1986) suggests that a VIF exceeding ten indicates a problematic level of collinearity. An alternative measure is the tolerance value, which ranges from 0 to 1 and quantifies the correlation between predictor variables. This study calculated and presented VIF and tolerance values in Table 5.5.

The VIF is equal to $1/(1 - R^2_i)$, where R^2_i is obtained from the multiple correlation coefficient of an explanatory variable X_i regressed on the remaining explanatory variables. Evidently, a higher VIF_i indicates R^2_i is close to one, indicating collinearity.

As shown in Table 5.5, all constructs in the model had VIF values ranging from 1.347 to 1.586, which were below the recommended threshold by Myers (1986) and Carlson (1988). Specifically, performance expectancy had a VIF of 1.586, effort expectancy of 1.470, social influence of 1.347, and behavioral intention and the facilitating condition had a VIF value of 0.863. In addition, all collinearity tolerance values were below one, confirming the absence of multicollinearity. Therefore, performance expectancy, effort expectancy, social influence, facilitating condition and behavioral intention did not exhibit collinearity issues, ensuring that the independent variables did not bias the prediction of the dependent variable.

Table 5.5. *Multicollinearity Check*

Variables	multicollinearity	
	Tolerance	VIF
Performance expectancy	0.631	1.586
Effort expectancy	0.680	1.470
Social influence	0.743	1.347
Behavioral intention	0.863	1.158
Facilitating condition	0.863	1.158

5.3.7. Matrix Correlation Analysis

According to Wong and Hiew (2005), correlation coefficients are classified into three categories: weak correlation (0.10 to 0.30), moderate correlation (0.30 to 0.50), and strong correlation (above 0.50). The correlation matrix serves as a simple yet effective tool for detecting multicollinearity. Field (2005) suggested that multicollinearity exists when the correlation coefficient of independent variables exceeds 0.80. In this study, the correlation matrix was examined, and the results

indicate that no significant multicollinearity issues were present, as none of the correlation coefficients exceeded the critical threshold.

According to Table 5.6, behavioral intention was positively correlated with performance expectancy ($r = 0.620$, $p < 0.01$), effort expectancy ($r = 0.283$, $p < 0.01$), social influence ($r = 0.437$, $p < 0.01$), and facilitating condition ($r = 0.370$, $p < 0.01$). Based on the factors of behavioral intention among performance expectancy, effort expectancy, and social influence, performance expectancy was the most correlated to behavioral intention.

The relationship between performance expectancy and effort expectancy was significantly correlated ($r = 0.539$, $p < 0.01$). Furthermore, a significant correlation existed between social influence, effort expectancy, and performance expectancies ($r = 0.406$, $r = 0.475$), where $p < 0.01$, respectively. The facilitating condition significantly correlated with performance expectancy, effort expectancy, and social influence ($r = 0.378$, $r = 0.426$, and $r = 0.504$), with $p < 0.01$ for each variable. In addition, there is another correlation between behavioral intention and the actual use of ICT. The behavioral intention did not correlate with the actual use of ICT ($r = -0.010$, $p > 0.01$). This result shows that performance expectancy had a strong correlation with behavioral intention. Following the performance expectancy, the effort expectancy, social influence, and facilitation condition had a weak correlation with behavioral intention.

Table 5.6. *Correlation Matrix*

Variables	PE	EE	SI	FC	The ICTU
PE	1				
EE	0.539**	1			
SI	0.475**	0.406**	1		
FC	0.378**	0.426**	0.504**	1	
UICT	-0.012	-0.039	0.012	0.116*	1
BI	0.620**	0.283**	0.437**	0.370**	-0.010

** Correlation is significant at 0.01 level(2 tail test) $N=289$

PE=Performance expectancy, EE=effort expectancy, SI= Social influence, BI=behavioral intention and UICT= the actual use of ICT

5.3.8. Heteroskedasticity Check

To detect heteroscedasticity in the regression model, the author decided to conduct the **White test** as recommended by Wooldridge (2003). Heteroscedasticity is defined as the presence of non-constant variance in the residuals, which violates the ordinary least squares (OLS) assumption. Thus, residuals should have constant variance. The presence of heteroscedasticity leads to biased standard errors and, consequently, biased test statistics, affecting the reliability of regression estimates. Therefore, testing for heteroscedasticity is crucial to ensure unbiased regression analysis.

According to Wooldridge (2003), the general White test can be performed to check for heteroscedasticity. This test involves calculating the Lagrange Multiplier (LM) statistics, which are given by $LM = n R_u^2$ where R_u^2 is the result of regressing the OLS squared residuals on the squared values of the predictors, the predictors as independents (performance expectancy, effort expectancy, and social influence), as well as their interaction terms (the multiplication of all predictors). For the null hypothesis of homoskedasticity, the LM statistic is based on a chi-square distribution (χ^2) with k degrees of freedom.

In this analysis, the author regressed the squared residuals on the squared values of k predictors and their predictors and interactions (predictors: performance expectancy, effort expectancy, social influence).

The hypotheses for the White test are:

- H_0 : **No heteroscedasticity** (if the calculated LM statistic < the critical value).
- H_1 : **Heteroscedasticity exists** (if the calculated LM statistic > the critical value).

Based on the results above, it was found that the White test has $R_u^2=0.036$ (See Table 5.7). Thus, LM statistics were 24.56, which exceeded the critical value from the chi-square distribution table (df = 7) of 14.07. As a result, the null hypothesis H_0 was rejected, indicating that heteroscedasticity was present in the regression model.

Table 5.7. *The Model Summary of Regression Standardize Prediction*

Model	R	R square	Adjust R square	Standard Error of Estimation
	0.292 ^a	0.085	0.062	0.53298

5.3.9. Regression Specification Error Test (RESET Test)

In running a regression analysis of performance expectancy, effort expectancy, and social influence on behavioral intention, it is crucial to ensure that the model equation has the correct functional form, as required by the linearity assumption in linear regression. This assumption ensures that the relationship between independent and dependent variables is properly specified. To address this concern, the RESET was conducted to evaluate whether nonlinear combinations of the fitted values from the linear regression model could better explain the dependent variable. The regression equation used for the analysis is as follows:

$$BI_i = \beta_0 + \beta_1 PE_i + \beta_2 EE_i + \beta_3 SI_i + \varepsilon_i$$

To perform the RESET test, the squared fitted values $(\widehat{BI}_i)^2$ and cubic fitted values $(\widehat{BI}_i)^3$ were added as an independent variables in the regression model where $(\widehat{BI}_i)^2 = (\beta_0 + \beta_1 PE_i + \beta_2 EE_i + \beta_3 SI_i)^2$ and $(\widehat{BI}_i)^3 = (\beta_0 + \beta_1 PE_i + \beta_2 EE_i + \beta_3 SI_i)^3$. Therefore, the modified model equation is:

$$BI_i = \beta_0 + \beta_1 PE_i + \beta_2 EE_i + \beta_3 SI_i + \delta(\widehat{BI}_i)^2 + \delta(\widehat{BI}_i)^3 + u$$

where BI_i = Behavioral intention for individual i , PE_i = Performance expectancy, EE_i = effort expectancy, SI_i = social influence

$(\widehat{BI}_i)^2$ and $(\widehat{BI}_i)^3$ = Polynomial terms (squared and cubic) of the predicted BI, u = Error term, $\beta_0, \beta_1, \beta_2, \beta_3$ = Coefficients to be estimated, δ = Coefficient for nonlinear BI terms.

However, the author calculated the p-value to check whether the equation had enough independent variables to explain the variable for this Ramsey RESET Test. The hypotheses for the RESET test were as follows:

- **Null hypothesis H_0 ($p < 0.05$):** There is a misspecification in the functional form (i.e., the model is incorrectly specified).

- **Alternative hypothesis H_1 ($p > 0.05$):** There is no misspecification of the functional form (i.e., the model is correctly specified).

Based on Table 5.8, the result of the RESET test indicates that the F-value was 51.644 with a p-value of $0.411 > 0.05$, which was statistically insignificant at conventional significance levels. Therefore, the null hypothesis was rejected, indicating that functional form misspecification was not an issue for the model.

Table 5.8. *Reset Test Results*

Model	<i>Unstandardized coefficients</i>		<i>Standardize coefficients</i>		
	B	S.E	Beta	<i>t</i> -test	Significance
Constant	2.718	1.471		1.847	0.066
PE	0.285	0.425	0.264	0.670	0.503
EE	-0.052	0.099	-0.050	-0.520	0.603
SI	0.096	0.150	0.094	0.638	0.524
Ramsey Test	0.006	0.007	0.356	0.823	0.411 > 0.05

5.4. Regression Analysis

After testing for heteroscedasticity, the result indicates the presence of heteroscedasticity in the data. As a result, the author utilized the parameter estimation with robust standard errors to adjust for this issue.

The regression model was statistically significant, with an F-value of $F(3, 288) = 68.710$, $p < 0.001$ (See Table 5.9). This finding suggests that the model fit the data well overall and demonstrated a statistically significant correlation between the behavioral intention of public servants toward the actual use of ICT and the ICT adoption, and the model has predictive power. In addition, R^2 (0.42) value suggests that the independent variables collectively explained 42 % of the variance in behavioral intention, while the adjusted R-squared was 0.414. Hair et al. (2014) suggested that this R-squared value is considered acceptable, as it is more significant than 0.10, confirming that the model adequately fits the data. This result also indicates that independent variables such as performance expectancy, effort expectancy, and social influence accounted for 42% of the variance in behavioral intention. It means that one percentage change of independent variables explained

42% of public servants' behavioral intention. This percentage has a significant effect, according to Cohen (1988).

According to Table 5.9, this study examines the factors influencing public servants' ICT adoption in e-Government. Specifically, it investigates the influence of performance expectancy, effort expectancy, and social influence on behavioral intention.

The result indicates that performance expectancy was the strongest predictor of behavioral intention, with a regression coefficient of 0.632 (Beta = 0.584, $t = 8.370$, and $p < 0.001$). Therefore, **H₁** was accepted, suggesting that performance expectancy significantly influenced behavioral intention.

Social influence also significantly impacted behavioral intention, with a regression coefficient of 0.212 (Beta = 0.207, $t = 3.063$, and $p < 0.001$). As a result, **H₃** was accepted.

In contrast, effort expectancy did not significantly impact behavioral intention. The regression coefficient for effort expectancy is -0.119 (Beta = -0.116, $t = -1.756$, $p > 0.001$). Thus, **H₂** is rejected.

Based on the result above, the study found that performance expectancy and social influence significantly influenced behavioral intention. In contrast, effort expectancy did not significantly influence behavioral intention.

Table 5.9. *Parameter Estimate with Robust Standard Error.*

Model	<i>Unstandardized coefficients</i>		<i>Standardize coefficients</i>		
	B	S.E	Beta	<i>t</i> -test	Significant
Constant	1.532	0.310		4.950	0.000
PE	0.632	0.075	0.584	8.370	0.000
EE	-0.119	0.068	-0.116	-1.756	0.080
SI	0.212	0.069	0.207	3.063	0.002
R					
F- Statistic	68.710				
<i>p</i>	<0.01				
<i>R</i> ²	0.420				
<i>Adjust R</i> ²	0.414				
<i>N</i>	289				

5.5. Logistic Regression

The dependent variable in this analysis influences the actual use of ICT in e-Government, which is a categorical variable. Respondents were asked, "Do you accept the use of ICT?" and their responses were coded as "yes" (1) and "no" (0). Given the binary nature of this dependent variable, logistic regression was used as a statistical method for analysis.

The logistic regression was conducted to examine ICT adoption, using the actual use of ICT as the dependent variable and behavioral intention and facilitating conditions as independent variables. Table 5.11 shows that the model was not statistically significant ($X^2(2, N=289) = 4.215, p = 0.122 > 0.05$). The model explained only 1.4% to 10.7% of the variance in ICT adoption, as indicated by the Cox & Snell R Square and Nagelkerke R Square values (see Figure 5.10). Furthermore, the result shows that 98.6% of public servants were ICT adopters, while only 1.4% were non-adopters (see Table 5.12).

The Wald statistic for each independent variable, associated degrees of freedom, and p-value are used to evaluate the coefficient significance in the regression model.

From the logistic regression results, As shown in Table 5.10, facilitating conditions had a significant influence on the actual use of ICT ($e^{\beta} = 5.727, p = 0.04 < 0.05$). This statistical result suggests that for every unit increase in facilitating conditions, the odds of actual use of ICT increase by a factor of 5.727. As a result, the hypothesis was accepted **H₄**. It indicates that the facilitating condition significantly influenced the actual use of ICT. In contrast, behavioral intention did not significantly predict the actual use of ICT. The result ($e^{\beta} = 0.755, p = 0.67 > 0.05$) indicates that an increase in behavioral intention corresponds to a decrease in the odds of actual ICT use by a factor of 0.755. Therefore, the hypothesis **H₅** was rejected, suggesting that behavioral intention did not influence the actual use of ICT.

Overall, the analysis indicates that facilitating condition significantly influenced actual use of ICT. In contrast, behavioral intention did not significantly influence the actual use of ICT.

Table 5.10.*Logistic Result*

Constructs	Actual use of ICT		Model summary
	Model (1)	Model (2)	
Facilitating condition	5.727		
Behavioral Intention		0.755	
log-odds coefficients	1.745	-0.286	
Wald statistics <0.05	0.04 <0.05	0.67>0.05	
Hypothesis	Accept H₄	Reject H₅	
Cox& Snell R Square			0.014
Nagelkerke R Square			0.107
2-log likelihood			37.97
Hosmer and lerne show Test			3.034 ($p=0.882$)

Table 5.11.*Omnibus Tests of Model Coefficients*

		Chi-square	df	Sig.
Step 1	Step	4.215	2	0.122
	Block	4.215	2	0.122
	Model	4.215	2	0.122

Table 5.12.*Classification*

Observed			Predicted		
			ICT use		Percentage Correct
			No	1	
Step 1	ICT use	No	0	4	0.0
		1	0	285	100.0
	Overall Percentage				98.6

5.6.Moderating Analysis

In this research, an interaction model analysis was employed to examine the moderating effects of gender and age on the relationship between the predictors and behavioral intention since the categorical data (age and gender) were used as the moderator. Moreover, the predictor change (PE, EE, and SI) would exist based on the effect of the moderator. The presence of a moderating effect can be assessed by

evaluating the coefficient of the interaction term (β_3) in the regression of the interaction model²⁹(Helm & Mark, 2012). Additionally, beyond the conventional t-test for the regression parameter (β_3), the significance of the moderating effect can also be tested using an F-test and *p*-value. This test determines whether the coefficient of determination (R^2) change from the base model³⁰ to the interaction model significantly differs from zero. Furthermore, the R^2 change (ΔR^2) indicates the moderating variable's effect size (Aguinis, 2004; Jaccard et al., 1990). The increase in R^2 reflects the additional variance in the criterion variable explained by the interaction term, which can be attributed to the moderator(Aguinis, 2004). The magnitude of the moderator effect can be further quantified using Cohen's f^2 formula is $f^2 = \frac{R_i^2 - R_B^2}{1 - R_i^2}$. According to Cohen (2013), conventional benchmarks for interpreting f^2 are as follows: 0.02 = small, 0.15 = medium, and 0.35 = large. In this study, the decision to test for moderating effects is grounded in theoretical rationale and prior empirical findings, which suggest that moderation is plausible and that testing for such effects helps prevent potential misinterpretation of the results (Aguinis, 2004).

Thus, the research moderating result, the author will report the result based on the R^2 , F-value, ΔR^2 , *p*-value, and effect size (f^2). To confirm the hypothesis, the author made assumptions based on the *p*-value of interaction terms (see Table 5.13).

a, The moderating of gender and age on the influence of performance expectancy on behavioral intention

- The R-squared (R^2) value indicates that 38% of the variance in behavioral intention was explained by performance expectancy and gender. The regression analysis results further showed that the interaction term (PE × gender) was not statistically significant ($F(1, 285) = 0.15$, $\Delta R^2 = 0.0003$, $f^2=0.0042$ and $p = 0.69 > 0.05$, suggesting that the inclusion of this

²⁹ The interaction model is the model formulated by adding the product term taken into the regression equation in the base model. Thus, the interaction model: $y_i = \beta_0 + \beta_1 x + \beta_2 z + \beta_3 xz$ (See Aguinis, 2004)

³⁰ A Base model (a regression model) is formulated including both the predictor, the independent, dependent, and the moderator variable. Therefore, Basic model: $y_i = \beta_0 + \beta_1 x + \beta_2 z$ (See: Aguinis, (2004); Jaccard et al,1990 and Helm & Mark,2012)

interaction did not meaningfully contribute to the explanatory power of the model. Thus, the hypothesis **H₆** was rejected, indicating that gender did not moderate the relationship between performance expectancy and behavioral intention.

- The R-squared (R^2) value indicates that 40% of the variance in behavioral intention was explained by performance expectancy and age. The regression analysis result further shows that the interaction term ($PE \times age$) was not statistically significant ($F(1, 285) = 0.12$, $\Delta R^2 = 0.0071$, $f^2 = 0.0178$, and $p = 0.72 > 0.05$), suggesting that the inclusion of this interaction did not meaningfully contribute to the explanatory power of the model. Thus, the hypothesis **H₇** was rejected, indicating age did not moderate the relationship between performance expectancy and behavioral intention.

b, The moderation of gender and age on the influence of effort expectancy on behavioral intention

- The R-squared (R^2) value indicates that 8.1% of the variance in behavioral intention was explained by effort expectancy and gender. The regression analysis result further shows that the interaction term ($EE \times gender$) was not statistically significant ($F(1, 285) = 0.02$, $\Delta R^2 = 0.0001$, $f^2 = -0.0198$, and $p = 0.872 > 0.05$), suggesting that the inclusion of this interaction did not meaningfully contribute to the explanatory power of the model. Thus, the hypothesis **H₈** was rejected, indicating that gender did not moderate the relationship between effort expectancy and behavioral intention.
- The R-squared (R^2) value indicates that 12% of the variance in behavioral intention was explained by effort expectancy and age. The regression analysis result further shows that the interaction term ($EE \times age$) was not statistically significant ($F(1, 285) = 0.0053$, $\Delta R^2 = 0.0053$, $f^2 = 0.07286$, and $p = 0.189 > 0.05$), suggesting that the inclusion of this interaction did not meaningfully contribute to the explanatory power of the model. Thus, the hypothesis **H₉** was rejected, indicating that age did not moderate the relationship between effort expectancy and behavioral intention.

c, The moderation of gender and age on the influence of social influence on behavioral intention.

- The R-squared (R^2) value indicates that 44.52 % of the variance in behavioral intention was explained by social influence and gender. The regression analysis result further shows that the interaction term ($EE \times \text{gender}$) was not statistically significant ($F(1, 285) = 2.2743$, $\Delta R^2 = 0.0064$, $f^2 = -0.1679$, and $p = 0.132 > 0.05$), suggesting that the inclusion of this interaction did not meaningfully contribute to the explanatory power of the model. Thus, the hypothesis **H₁₀** was rejected, indicating that gender did not moderate the relationship between social influence and behavioral intention
- The R-squared (R^2) value indicates that 21.35 % of the variance in behavioral intention was explained by social influence and age. The regression analysis result shows that the interaction term ($EE \times \text{age}$) was not statistically significant ($F(1, 285) = 0.0074$, $\Delta R^2 = 0.000$, $f^2 = 0.0050$, and $p = 0.9313 > 0.05$), suggesting that the inclusion of this interaction did not meaningfully contribute to the explanatory power of the model. Thus, the hypothesis **H₁₁** was rejected, indicating that gender did not moderate the relationship between social influence and behavioral intention.

d, The moderation of age on the influence of facilitating condition on behavioral intention.

- The results from the logistic regression analysis indicate that FC, age, and their interaction term ($FC \times \text{age}$) did not significantly contribute to explaining the variance in the outcome variable. This result shows that there was a non-significant chi-square statistic ($\chi^2 = 0.0231$, and $p = 0.87 > 0.005$). Thus, **H₁₂** was rejected. This result indicates that the interaction ($FC \times \text{Age}$) did not significantly contribute to the model. Therefore, age did not moderate the influence of facilitating condition on the actual use of ICT.

5.7. Conclusion

This chapter presented a detailed analysis of the research findings. The data collected from respondents were analyzed to address the research questions and objectives, particularly to determine the factors influencing public servants' adoption of ICT in the context of e-Government in Cambodia. Descriptive analyzes were conducted to present the initial findings, and then, various tests were performed to examine the suitability of the data for further analysis, particularly in relation to hypothesis testing to determine whether the proposed hypotheses could be supported or rejected. Thus, a two-stage analytical approach was used to examine these relationships. First, multiple regression analysis was conducted to investigate the impact of performance expectancy, effort expectancy, and social influence on behavioral intention. In the second stage, logistic regression analysis was performed to determine whether behavioral intention and facilitating conditions influenced the actual use of ICT.

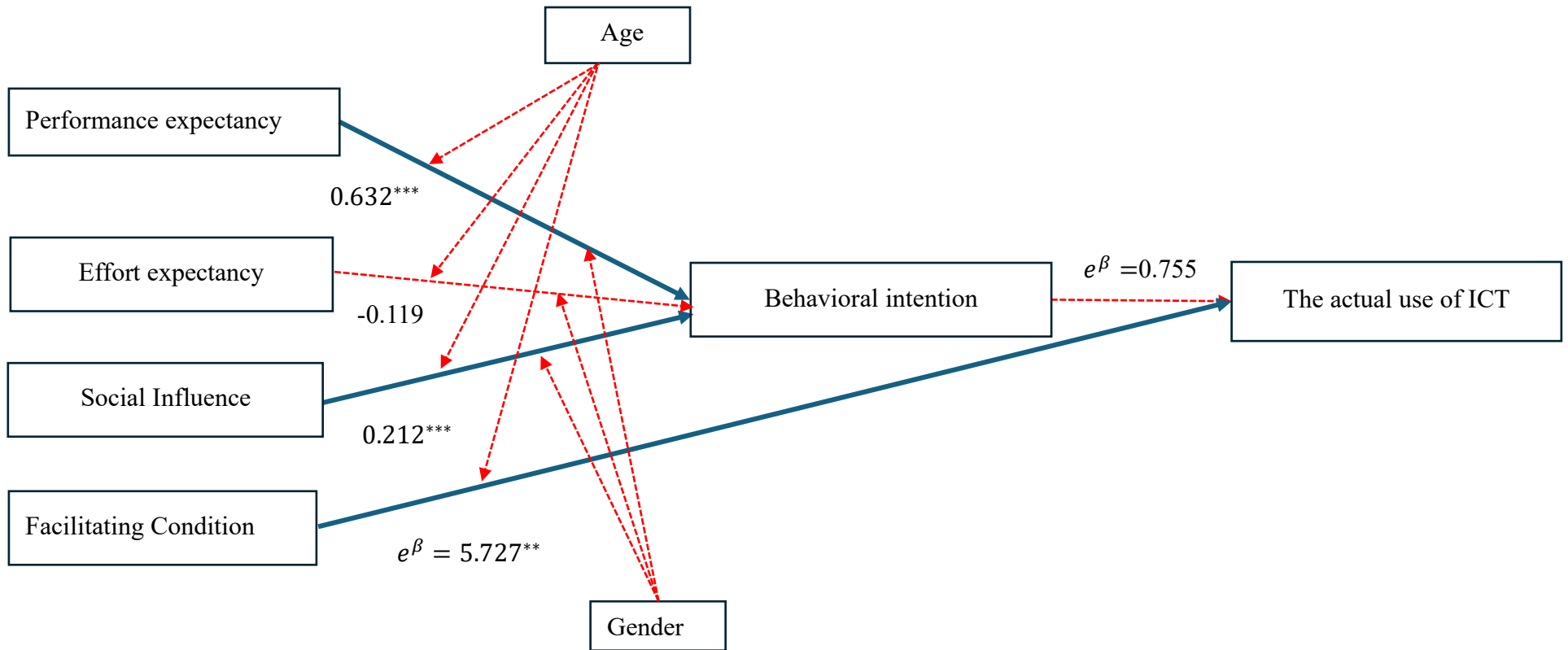
To enhance the explanatory power of the UTAUT model, six measurement items were excluded from the analysis, including three from social influence (SI3, SI4, SI5), two from effort expectancy (EE5, EE2), and one from facilitating conditions (FC6). Figure 5.10 indicates that performance expectancy and social influence significantly influenced behavioral intention, whereas effort expectancy did not. Facilitating condition influenced the actual use of ICT, while behavioral intention did not influence the actual use of ICT. Furthermore, the study incorporated age and gender as moderating variables to assess their influence on the relationships between independent and dependent variables. Table 5.13 shows that neither age nor gender moderated the effects of performance expectancy and social influence on behavioral intention. Similarly, age did not moderate the impact of facilitating conditions on actual ICT use. A minimal change in R^2 (ΔR^2) and a high p-value further support the lack of significance in these moderating effects. In chapter 5, the findings from this analysis will be further discussed, interpreted, and compared with previous research studies. Additional implications of these results will be explored.

Table 5.13. *Moderation Analysis of Age and Gender*

IV	Model	R ²	ΔR ²	F-value of interaction	P-Value of interaction	Effect size f^2 of interaction	Moderation confirm
PE	PE (constant,PE) (Constant),PE,Age, Gender,	0.4012	0.0010	0.2394	0.7872		
	Predictor:(Constant),PE,Gender, Gender *PE	0.3851	0.0003	0.1537	0.69	0.0042	Reject H₆
	Predictor:(Constant),PE,Age, Age*PE	0.4004	0.0071	0.1241	0.7249	0.0178	Reject H₇
EE	PE (constant,PE)	0.1337	0.0062	1.0161	0.3633		
	Predictor:(Constant),EE,Gender, Gender *EE	0.0815	0.0001	0.0261	0.8718	-0.0198	Reject H₈
	Predictor:(Constant),EE,Age, Age*EE	0.1264	0.0053	1.7286	0.1896	0.07286	Reject H₉
SI	SI (constant,PE)	0.47	0.0064	1.1514	0.3177		
	Predictor:(Constant),SI,Gender, Gender *SI	0.1882	0.0064	2.2743	0.1326	-0.1679	Reject H₁₀
	Predictor:(Constant),SI,Age, Age *SI	0.2135	0.000	0.0074	0.9313	0.0050	Reject H₁₁
IV	Model	Model of log likelihood	Chi Squire	P-value	Effect size f^2	Moderation Confirmation	
FC	Predictor:(Constant),FC ,age , Age *FC	4.2185	0.0231	0.87	0.1715	Reject H₁₂	

Model1–(constant),PE,EE,SI–Age*PE, Age*EE, Age*SI, and Age*FC

Figure 5.10. *Result of this Research Study*



Note: Supported

Not supported

*** $P < 0.01$, ** $P < 0.05$

Chapter 6: Discussion

6.1. Introduction

Based on the research study, this research is conducted to determine the factors affecting public servants' ICT adoption of e-Government in the case of Cambodia. Thus, this analysis is conducted in two stages: regression and logistic regression stage.

The study proposed the research questions below:

1. To what extent do performance expectancy, effort expectancy, and social influence significantly influence behavioral intention in ICT adoption?
2. To what extent do facilitating condition and behavioral intention influence the actual use of ICT?
3. To what extent do age and gender moderate the influence of performance expectancy, effort expectancy, and social influence on behavioral intention?
4. To what extent does age moderate the influence of facilitating condition on the actual use of ICT?

Based on the research question, 12 research hypotheses are developed based on the UTAUT model. Twelve research hypotheses are divided into three themes. Based on the answer to the first research question, three research themes of hypotheses are formulated to predict the influence of performance expectancy, effort expectancy, and social influence on behavioral intentions. Furthermore, another hypothesis's assumptions are related to the direct influence of behavioral intention and the facilitating condition on the actual use of ICT. The final hypothesis states that the relationship between facilitating conditions and actual ICT use and the relationship between performance expectancy, effort expectancy, and social influence on behavior intention are all moderated by age and gender. The discussion results also include the implications for research and the conclusion in this chapter.

6.2. Discussion based on Hypothesis

According to the research framework developed based on by Venkatesh et al. (2003), the survey has four main independent variables and two dependent variables, namely the behavioral intention and the actual use of ICT. The independent variables include social influence, facilitating conditions, performance expectancy, and effort expectancy. Accordingly, the following hypotheses are defined and discussed below:

Performance Expectancy

H₁ The performance expectancy will have an influence on behavioral intention.

Performance Expectancy is defined as the perception of individual users who believe that using ICT along with organizational encouragement and perceived benefits would help them improve their working performance. Performance expectancy includes perceived usefulness, extrinsic motivation, job fit, relative advantage, and outcome expectation (Venkatesh et al., 2003). The research analysis above shows that performance expectancy was a powerful predictor strongly influencing public servants' behavioral intention to use ICT in their jobs. The construct that was developed for the hypothesis in this research includes seven main questions related to the benefits, which include relative advantage, perceived usefulness, extrinsic motivation, and job fit, adopted from Venkatesh et al. (2003) and relative advantage adopted from Soong et al. (2020).

Based on statistical analysis, this hypothesis was tested in accordance with the corresponding research question, yielding significant findings ($\beta = 0.264$, $t = 0.670$, and $p < 0.001$). These result shows that performance expectancy is a critical determinant influencing the adoption of ICT among public servants. The finding implies that public servants perceive ICT as a tool to enhance their work performance. Performance expectancy is a key consideration for government initiatives promoting ICT use in the public sector. The users are likely to use the ICTs and adopt the ICT in theirs work since the ICT provides them with more benefits. This result is because the users might believe that using ICT would provide various benefits and help them accomplish their jobs productively and effectively, making it easier to do and more encouraging and productive in their jobs. For

another reason, the public servant's perception is that ICT might fit their job when they use ICT. Thus, the users are likely to adopt ICT in their jobs. Based on this result, it shows that performance expectancy had a strong potential influence on behavioral intention. This result was consistent with other previous studies conducted by Batara et al. (2017); Gupta et al. (2008); Venkatesh et al. (2003) and Kijisanayotin et al. (2009) who found that performance expectancy had a significant influence on behavioral intention among the employees in the organization. Therefore, adopting ICT would provide a wide range of better options and benefits for public servants as it saves time and reduces the cost of doing their work effectively and with high productivity.

Effort Expectancy

H₂ The effort expectancy will have an influence on behavioral intention.

In the Cambodian context, effort expectancy is defined as the perceived ease of use related to ICT usage interaction and ICT learning (Ustun et al., 2023; Venkatesh et al., 2003). Thus, public servants' effort expectancy could be related to ease of use or difficulties and the ability learning processes of ICT usage. Thus, effort expectancy would be involved with the overcoming interaction of ICT complexity, knowledge and learning on how to use ICT (Mono, 2021; Venkatesh et al., 2003). In the hypothesis, the effort expectancy measures the respondents' perception, which consists of some question items from the constructs of perceived ease of use, complexity, and ease of use (Venkatesh et al., 2003).

Based on the statistical analysis, effort expectancy did not significantly influence behavioral intention (Beta = -0.050, $t = -0.520$, and $p = 0.08 > 0.05$). The non-significance of effort expectancy could be due to some reasons that public servants prefer to do their job with ICT, driving factors that do not impact their behavior toward ICT use. This is because the perceived ease of use did not impact the public servant's behavior. We suspect that the reason for our results is that respondents perceived more difficulties or increased effort to use the ICT tools to do their jobs, which led to lower behavioral intention toward using ICT. Thus, ease of use would not be the case for Cambodian public servants. They are likely to put more effort into using ICT, their interaction with ICT use, knowledge of ICT use,

and limitations of their ability to learn ICT when they use ICT in their jobs. On the other hand, there could be the complexity of ICT systems, which is also considered a factor that may discourage public servants' behavior from using ICT. The ICT complexity issues could make public servants lower their behavior toward using ICT, even though ICT use has provided them with a wide range of benefits. Thus, public servants perceived low ease of use due to lack of ICT skills and knowledge to use ICT in the jobs, which would not help them overcome the ICT complexity issues include the understanding of using international language in system, inability to understand the ICT function with technology development (Mono, 2021). According to Yang and Sovann (2019) and UNDP (2007), Cambodia public servants have a knowledge limitation and a low level of ICT ability. Thus, RGC (2022) also released digital government policies by establishing the third strategic goal of digital capacity building to improve digital and human capital development, ICT skills, and digital literacy among public leaders and servants across the ministries to facilitate their tasks.

This finding was congruent with prior research identifying that negative effort expectancy did not significantly influence behavioral intention which were conducted by Pardamean and Susanto (2012); Chung et al. (2016) and Zhan et al. (2011). In addition, Mosweu et al. (2016); Al-Gahtani et al. (2007) and Batara et al. (2017) also found that employees had difficulties in using ICT. These previous studies also identified that technology use was not friendly and lead to lower behavioral intention. Based on the perspective of results, the findings contradicted other previous studies conducted by Alraja et al. (2016); Gupta et al. (2008); Venkatesh et al. (2003); Sudirman et al. (2019) who found that effort expectancy influenced behavioral intention since Venkatesh et al. (2003) indicated that effort expectancy played a key role in facilitating technology acceptance. Individual users are likely to intend to use ICT when they know they are paying for the free effort to use ICT to serve their jobs.

Social Influence

H₃ : Social Influence will have an influence on behavioral intention.

Social influence defines an individual's perception that important others believe he or she should use the new ICT system (Venkatesh et al., 2003). In the hypothesis, the respondents were asked five questions, including some items from the construct of subjective norm adopted from Venkatesh et al. (2003), Davis (1989), Fishbein and Ajzen (1975). According to Venkatesh et al. (2003), TRA, TPB, and image in IDT are some of the models that represent social influence as the subjective norm. The result of analysis showed that social influence significantly influenced behavioral intention (Beta = 0.094, $t = 0.638$, and $p < 0.001$). This result indicates that public servants use ICT when they realize all their peers or workmates do. This result also suggests that the leaders of their department of organization, as well as the top management leader of the ministry, have a potential influence on their inferior to use ICT in their job. With the influence of the top management, the public servants start to express their positive behavior in using ICT. This result was consistent with other previous studies conducted by Tabuni and Kusuma (2019) and Sudirman et al. (2019) who found that social influence influenced behavioral intention. This study also shows that their leader influence the users' behavior when using ICT in the e-Government system.

Facilitating Condition

H₄ : The facilitating condition will have an influence on the actual use of ICT.

Facilitating condition is defined as the extent to which individuals think that an important person or other believes they should use the new ICT system (Venkatesh et al., 2003). In technology adoption, facilitating condition becomes important to ensure that the individual can use ICT. The facilitating condition is adopted from previous studies, which consists of perceived behavioral control focusing on knowledge, available resources (hardware and software), and technical help (Bawack & Kala Kamdjoug, 2018; Rabaa'i, 2017) facilitating conditions, including internet access, and regulations (Al-Shafi, 2009; Soong et al., 2020; Venkatesh et al., 2003), and compatibility, including the experience and ICT use consistency (Wang et al., 2017).

The results showed that the facilitating condition significantly influenced the actual use of ICT, suggesting that H_4 was accepted ($e^{\beta} = 5.727$, $p = 0.04 < 0.05$). The results indicate that public servants have the perception that knowledge, available resources (hardware and software), technical help, internet access, regulations, and experience and ICT use consistency might be important parts of their ICT adoption in their jobs. All elements of these facilitating materials become an important source and support for public servants to ensure that they can use the ICT in their jobs since the organization and technological environment, which includes all of these facilitation and element sources, would be an important mechanism to support the public servants using ICT. In addition, these facilitations and sources are considered to minimize the challenges and barriers that can prevent or hinder the use of ICT systems. This result was consistent with other previous studies (Suha Alawadhi & Anne Morris, 2008; Alibraheem et al., 2019; Alshehri, 2013; Gupta et al., 2008; Kijisanayotin et al., 2009) and these previous studies found that the facilitating condition significantly influenced the actual use of technology among public employees. However, this result contrasts with previous studies (Gupta et al., 2008; Venkatesh et al., 2003), who found that the facilitating condition did not significantly influence the actual use of technology.

Behavioral Intention

H₅ : The behavioral intention will have an influence on the actual use of ICT

Behavioral intention is defined as the degree to which an individual is willing to carry out a particular action or behavior (Davis, 1989). According to Ajzen (1991), the stronger the intention to perform a particular behavior, the more likely it is that such performance will occur. Venkatesh et al. (2003) also found the influence of behavioral intention on the actual use of ICT.

The result showed that behavioral intention did not significantly influence the actual use of ICT ($e^{\beta} = 0.755$, $p = 0.67 > 0.05$). This result reflects that the public servants' behavioral intention does not translate its behavior itself into the actual use of ICT. This result suggests that public servants' behavioral intention to use ICT may encounter challenges from external factors, such as limited knowledge of ICT usage, infrastructure, and government support such as encouragement and

regulation. These challenges might be because public servants still prefer to do their jobs based on the traditional method of paper-based and manual methods rather than relying on the use of ICT due to the difficulties and the hindrance to knowledge, infrastructure, regulation, and government support in ICT use. This result leads to low behavior toward using ICT in their jobs. It is also due to low levels of effort expectancy, resulting in ICT resistance in terms of ease of use and self-efficacy among public servants (Lapointe & Beaudry, 2014). This situation has also received increased attention through the RGC's efforts to develop a digital government aimed at transforming public servants' behavior and enhancing their capacity to use ICT in their work, since public servants still use the traditional working method rather than relying on ICT systems and low level of ICT interaction in the job (RGC, 2022). In this scenario, the challenge of ICT usability may prevent public servants from using ICT and digital work. This result was also consistent with a study conducted by Pardamean and Susanto (2012), who also found that behavioral intention did not significantly influence the actual use of technology, while this study result contradicts Zhan et al. (2011) and Venkatesh et al. (2003) and found that the behavioral intention had its effect on the actual use of ICT in IS literature review.

Moderator Age and Gender

Gender and age as moderators were considered to moderate the influence of predictors in the UTAUT model, which was developed by (Venkatesh et al., 2003). Venkatesh et al. (2003), Wang and Shih (2009), and Lian and Yen (2014) conducted the moderating prediction of gender and age on the relationship between performance expectancy, effort expectancy, and social influence, and behavioral intention. Age was used in this UTAUT model. This research study also used age and gender as moderators in this model because there are some reasons related to demographic issues of Cambodian public servants on the issues of ICT use ³¹.

³¹ The information of Cambodian public servants' issues regarding to age and gender can be found in section 4.2. in the chapter 4.

Performance Expectancy

H_6 : Gender will moderate the influence of performance expectancy on behavioral intention.

Venkatesh et al. (2003) found that performance expectancy is the strongest predictor of behavioral intention compared to other predictors in the UTAUT model, applicable in both voluntary and mandatory settings. The ICT performance expectation factor can be changed because female users have family responsibilities, and the performance expectancy would be more salient for male than female users. Thus, Venkatesh et al. (2003) suggested that gender has a strong psychological basis as a moderating variable in this relationship.

The results indicates that gender did not moderate the relationship between performance expectancy and behavioral intention ($\Delta R^2 = 0.0003$, $f^2=0.0042$, and $p = 0.69 > 0.05$). This result implies that there is no significant difference between men and women regarding the influence of performance expectancy on their intention to adopt ICT among public servants. One possible explanation is the gender imbalance in the sample, where male respondents (63.4%) are overrepresented, potentially limiting the ability to detect a moderating effect. This result implies that there is no difference between males and females in task orientation when they use ICT to do their jobs. This finding was consistent with Gupta et al. (2008) who also found that gender did not moderate the relationship between performance expectancy and behavioral intention. In contrast, Venkatesh et al. (2003) found that gender moderated the influence of performance expectancy on behavioral intention.

H_7 : Age will moderate the influence of performance expectancy on behavioral intention. Furthermore, Venkatesh et al. (2003) proposed that age was a moderator that moderates the relationship between performance expectancy and behavioral intention. Thus, younger users perform more actively than older or female users.

However, the analysis showed that age did not moderate the relationship between performance expectancy and behavioral intention ($\Delta R^2 = 0.0071$, $f^2=0.0178$, and $p = 0.72 > 0.05$). This result implies that there is no significant difference between younger and older and female employees in how

performance expectancy affects their behavioral intention to use ICT for job-related tasks. One explanation for this could be the dominance of younger participants, 43% (30–39 years old) in the sample, which may have reduced the ability to detect age-related differences in the moderating effect. The result was also consistent with Zhan et al. (2011) who found that age did not moderate the influence of performance expectancy and behavioral intention.

Effort Expectancy

H₈ : Gender will moderate the influence of effort expectancy on behavioral intention. Venkatesh et al. (2003) also discussed gender differences in the ease of use of technology. In particular, women are thought to be more influenced by perceived ease of use when forming behavioral intentions, so effort expectancy, the degree of ease associated with using technology, is generally more salient for women than for men (Suha Alawadhi & Anne Morris, 2008).

However, the results indicated that gender did not moderate the influence of effort expectancy on behavioral intention ($\Delta R^2 = 0.0001$, $f^2 = -0.0198$, and $p = 0.872 > 0.05$). This result suggested that, within the MoE, women and men may share similar education and technological literacy levels, which could explain the absence of a moderating effect by gender. 95.7% of the respondents holding either a bachelor's or a master's degree, reflecting minimal differences in education levels between male and female participants. This would make the minimal gender difference related to perceived ease of use, which cannot detect its moderating effects in this model.

Similarly, Gupta et al. (2008) also found that gender did not moderate the relationship between effort expectancy and behavioral intention. In this context, female public servants may have educational backgrounds and ICT competencies comparable to those of their male counterparts. Therefore, the perceived ease of use or effort expectancy among women may not significantly differ from that of men, leading to the insignificant moderating role of gender in this study.

H₉ : Age will moderate the influence of effort expectancy on behavioral intention.

Venkatesh et al. (2003) discussed potential age differences in how users perceive the ease of use of technology, suggesting that older individuals and those with limited experience may be more sensitive to effort expectancy. As individuals

age, they may experience more significant cognitive loads or challenges in processing complex information, which could, in turn, influence their behavioral intention in using technology (Venkatesh et al., 2003).

However, the current study's findings showed that age did not significantly moderate the influence of effort expectancy on behavioral intention ($\Delta R^2 = 0.0053, f^2 = 0.07286$, and $p = 0.189 > 0.05$). This result indicates a slight change in explained variance ($\Delta R^2 = 0.0053$). This effect is statistically insignificant, revealing that users perceive effort expectancy similarly when they use ICT across different age groups. This result was also consistent with a study conducted by Sudirman et al. (2019) and found that age did not moderate the influence of effort expectancy on behavioral intention.

Social Influence

H₁₀ : Gender moderates the influence of social influence on behavioral intention to use ICT.

Based on gender role theory, psychological literature suggests that women tend to be more receptive to the opinions and influences of others (Venkatesh et al., 2003). According to the UTAUT model, social factors have a greater impact on women's adoption of ICT in the workplace than on men's (Venkatesh et al., 2003).

The results of this study indicated that gender did not significantly moderate the influence of social influence on behavioral intention ($\Delta R^2 = 0.0053, f^2 = -0.1679$, and $p = 0.189 > 0.05$). It can be explained that this non-significant moderation effect could be due to the gender imbalance within the sample, where the proportion of female respondents (27.6%) is approximately half that of male respondents. This disparity may have reduced the statistical detection power for moderating effects, limiting the variance explained by gender in this relationship. Furthermore, this finding suggests that both male and female public servants tend to exhibit similar responses to social influence in this context. In other words, female employees are no more or less likely than their male counterparts to be influenced by organizational norms or external opinions regarding ICT use in their jobs. This result implies that, regardless of gender, public servants perceive social influence role in their ICT adoption decisions similarly. This result also aligned with

previous research conducted by Gupta et al. (2008) and Zhan et al. (2011), who also found that employees' gender did not moderate the influence of social influence on behavioral intention in contexts of technology adoption.

H₁₁ Age moderates the influence of social influence on behavioral intention to use ICT. Venkatesh et al. (2003) postulated that age moderates the influence of social influence on behavioral intention, which suggests that older individuals are more sensitive to other opinions and pressures in adopting technology. This is supported by previous research studies by (Venkatesh et al., 2000), which found that the influence of social factors tends to decrease as individuals acquire more experience with technology.

The result showed that age did not significantly moderate the influence of social influence on behavioral intention ($\Delta R^2 = 0.0074$, $f^2 = 0.0050$, and $p = 0.9313 > 0.05$). The result showed that social influence did not significantly influence older public servants' decisions to use ICT in their work compared to the younger counterparts. This result implies that ICT communication networks are widely available in public sector organizations, which might be one reason for this finding. This result means that both older and younger public servants might have similar levels of exposure to organizational norms and external guidance from the organization related to the importance of ICT use. In addition, it shows that neither age group perceives significant importance in using ICT based on external opinions. This result was consistent with previous studies conducted by Sudirman et al. (2019), who also found that age did not moderate the influence of social influence on behavioral intention in the context of technology adoption.

Facilitating Condition

H₁₂ : Age moderates the influence of facilitating condition on the actual use of ICT Venkatesh et al. (2003) also discussed facilitating psychological condition by considering age as arbitrator that older worker might need assistance or help when they use ICT in their job. Venkatesh et al. (2003) also emphasized the relationship between age and the limitation of increasing cognitive and physical limitations in the context of ICT use.

The result showed that age did not moderate the influence of facilitation conditions on the actual use of ICT ($\chi^2 = 0.0231$, $p = 0.87 > 0.005$). This result suggests that there is indifference between the older and younger public servants regarding the cognitive and physical ability to handle the complexity of ICT use in their jobs. This implication reveals that the old public servants have enough experience from long ago to use ICT in their jobs at a certain level. This result was also consistent with another previous study (Al-Gahtani et al., 2007; Sudirman et al., 2019) who also found that age did not moderate the influence of facilitating conditions on the actual use of ICT.

Table 6.1. *Summary of Hypotheses in this Study*

Hypothesis	Hypothesis statement	Result
H_1	Performance expectancy will have an influence on the behavioral intention.	Support hypothesis
H_2	Effort expectancy will have an influence on the behavioral intention.	Not support hypothesis
H_3	Social influence will have an influence on behavioral intention.	Support hypothesis
H_4	Facilitating condition will have an influence on the actual use of ICT.	Support hypothesis
H_5	Behavioral intention will have an influence on the actual use of ICT.	Not support hypothesis
H_6	Gender will moderate the influence of performance expectancy on behavioral intention.	Not support hypothesis
H_7	Gender will moderate the influence of effort expectancy on behavioral intention.	Not support hypothesis
H_8	Gender will moderate the influence of social influence on behavioral intention.	Not support hypothesis
H_9	Age will moderate the influence of performance expectancy on behavioral intention.	Not support hypothesis
H_{10}	Age will moderate the influence of effort expectancy on behavioral intention.	Not support hypothesis
H_{11}	Age will moderate the influence of social influence on behavioral intention.	Not support hypothesis
H_{12}	Age will moderate the influence of facilitating condition on the actual use of ICT.	Not support hypothesis

6.3.Conclusion

This chapter presented the discussion of the research findings by comparing the results from Chapter four with those of previous studies in the field. The discussion drew heavily on key studies, particularly Venkatesh et al. (2003) and Gupta et al. (2008), as well as other relevant literature, most of which focus on the government-to-employee (G2E) context as the primary basis for analysis. Furthermore, the chapter outlined the implications of each factor discussed. The findings of this research indicated that performance expectancy and social influence significantly impacted behavioral intention. On the other hand, the actual use of ICT was significantly impacted by facilitating conditions. However, effort expectancy did not significantly influence behavioral intention, and behavioral intention did not significantly influence the actual use of ICT. Additionally, the results revealed that neither age nor gender moderates the relationships between the independent variables (performance expectancy, social influence, facilitating conditions) and the dependent variables (behavioral intention and actual use of ICT).

Chapter 7: Conclusion and Recommendation

7.1. Introduction

The chapter reviews the research conclusion, which illustrates the entire summary, covering the research problem, the key concept of this study, research questions, objectives, and research findings. Then, the chapter provides the theoretical and research contributions and the practical implications for the ICT adoption by public servants in e-Government. Consequently, the chapter highlights limitations and future contributions.

7.2. Conclusion

This research study was conducted to identify the factors contributing to the low ICT adoption level among public servants in the MoE. The MoE public servants faces challenges related to knowledge limitation, insufficient infrastructure and ICT tools, lack of skills, policies, guidelines, and encouragement, all of which influence the public servants' ICT adoption. All these issues reflect the perceived behavior controls, ease of use, and ease of usefulness when using ICT. Thus, the study investigated the factors that influence public servant's adoption.

To identify these important factors, this study used the UTAUT model as the theoretical framework to overcome the shortcomings of the previous study, as the theoretical gap in the purpose of the comprehensive explanation of technology adoption improvement by adding the social factor and facilitating condition factor in the UATUT framework. Responding to the central concept of technology adoption in the literature review, the research problems, and the research question and objective, the UTUAT as the theoretical framework has four main independent variables: performance expectancy, effort expectancy, social influence, and facilitating condition, and behavioral intention and actual use of ICT and two moderators, age and genders, was conducted to develop the 12 hypotheses in this research. To test the 12 hypotheses, the study used multiple regression to analyze the influence of performance expectancy, effort expectancy, and social influence on behavioral intention and logistic regression to analyze the influence of facilitating condition and behavioral intention on the actual use of ICT by using 292 samples applying non-probability sampling (convenient sampling).

Finding shows that performance expectancy and social influence significantly influenced behavioral intention, and facilitating conditions influence the actual use of ICT. In contrast, effort expectancy had no significant influence on behavioral intention, while behavioral intention did not significantly influence the actual use of ICT. The non-significance of negative effort expectancy shows that public servants face difficulties in using ICT due to ICT complexity and knowledge limitation, and the non-significance of behavioral intention influences the actual use of ICT due to the ICT resistance, such as self-efficiency and perceived ease of use, as well as limited knowledge of ICT usage, infrastructure, and government support include the encouragement and regulation which make the public servants face challenges to use ICT. However, all the findings were consistent with previous studies focusing on the government-to-employee frameworks.

These findings concluded that performance expectancy was the powerful predictor of public servant behavior. Social influence influences behavioral intention. In addition, the facilitating condition also influences the actual use of ICT. The RGC should improve ICT use and provide encouragement, training, capacity development, and other support. In addition, RGC should also actively support ICT by integrating it into strategic goals, establishing an ICT organizational culture, and having strong leadership to implement e-Government. Moreover, RGC should improve the ICT support, investment, accessible ICT tools, regulation, and policies that increase ICT adoption among public servants.

7.3. Research Contribution

7.3.1. Empirical Contribution

Although ICT adoption has been widely studied in international contexts, the author argues that the research on ICT adoption within the public sector in Cambodia remains limited. It is noted that the adoption of ICT in e-Government continues to face challenges for public servants. This study was conducted to examine the factors influencing public servants' ICT adoption. The outcome of this study will provide more knowledge on ICT adoption in the Cambodian context and provide valuable and innovative insights into the implementation and adoption processes among public servants. Moreover, the research provides practical guidelines and solutions

to enhance ICT adoption as well as e-Government implementation within ministries to improve the efficiency and effectiveness of public servant through the effective ICT use in their jobs

7.3.2. Theoretical Contribution

This study contributes to policy implementation based on ICT adoption among public servants. It identified the core factors affecting public servants in the Cambodian context by applying the UTAUT model to improve their ICT adoption. Thus, the UTAUT model provided frameworks that enable us to explain the Cambodian public servants' ICT adoption with a high variance of 69.43% in this research model, which is also aligned with similar information systems literature reviews. The most important contribution is to examine factors influencing the public servants' ICT adoption by validating and adding question items in each construct of the UTAUT model based on cognitive interviews to ensure the UTAUT application is reflected in the Cambodian public servants' perspectives.

This study used the UTAUT model to address most of the identified gaps because the characteristics of users has the impact on ICT adoption which consist of performance expectancy, effort expectancy, social influence, facilitating condition, behavioral intention, and actual ICT use. Furthermore, the author used the additional construct and moderators as gender and age to explain the behavioral intention toward using ICT to help fill some theoretical gaps in the existing theory on ICT adoption that was previously conducted by Sang and his colleagues.

7.4. Policy Recommendations

This research study contributes some insightful practical implications for the government and ministries, with practical implications and policy recommendations to ensure that ICT integration in the public sector is underway. Practical implications and policy recommendations are provided below

7.4.1. Enhancing the ICT Usage and Training Program

The effective ICT use and its associated benefits in the public sector remains limited due to several persistent challenges in government digital policies and national framework implementation since there is a lack of encouragement, capacity development limitation with the high complexity of ICT use (Mono, 2021; RGC, 2022, 2024; Yang & Sovann, 2019). These constraints significantly hinder public servants' adoption of ICT, thereby restricting its potential to improve work performance.

To respond to these issues, the ministry should address the challenges that affect working performance. The ministry should set up training programs specifically for officials who are reluctant to adopt ICT and encounter difficulties that cannot be overcome due to the complexity of ICT, moving away from traditional paper-based procedures to improve the practical usefulness of ICT. Thus, the practical usefulness will impact changing working procedures with limited knowledge sharing into an automatic, transparent, paperless digital information system and behavior across ministries and institutions. Furthermore, the ministry should provide workshops related to other new systems or related technologies and government support to enable them to handle the systems, overcome the malfunctions in systems and prove their ICT adoption since successful e-Government depends on the skillful public servants who are eager to accept digital government reform and new initiatives to cooperate into their working processes (Kim & Lee, 2009)

In addition, the dissemination of benefits of using ICT should be made clear to public servants by promoting the importance of ICT for their jobs and its tremendous benefits to foster their working productivity with high advantage and usefulness. On the other hand, the ministry should integrate encouragement or reward systems into its policies to foster ICT adoption and e-Government initiatives.

For instance, ICT competency would be related to performance wards, promotion of public servants to a higher position, and other achievements. This

encouragement would push public servants to change their behavior, actively adopt ICT in their work processes, and increase the number of digital talents in the ministry.

7.4.2. Enhancing Leadership in ICT Management

Based on these findings, it is recommended that leaders and senior officials actively encourage and motivate civil servants to make use of ICT in their work. The results show that public sector employees consider leadership to be a key factor in encouraging the uptake of ICT in organizations.

This can be partly attributed to the relatively high level of individualism among Cambodian public servants, which encourages a collective behavior where the opinions and behaviors of others significantly impact the individual's intentions (Afonso et al., 2012). Thus, leaders should show a clear commitment to ICT initiatives. This can be achieved by setting clear expectations and integrating ICT strategies into broader organizational objectives to ensure public servants adopt ICT in their jobs. In addition, ministry and department leaders should work to establish organizational norms that promote the use of ICT, creating an environment where technology integration becomes a standard working culture. According to Zhang et al. (2014) and Yang and Rho (2007), e-Government implementation and diffusion could be achieved when there are effective leaders, leadership support, and managerial skills.

7.4.3. Improving and Increasing the ICT Tools and ICT Support

Based on the study results, the ministry should provide comprehensive support for the ICT adoption by ensuring the availability of ICT tools and providing other resources such as knowledge dissemination (training), hardware and software access, technical support, reliable internet connectivity, adequate regulation, and robust technical infrastructure. These provision and support would allow public servants to integrate ICT more effectively into their daily work and help overcome ICT infrastructure bottlenecks, to ensure the public servants' ICT adoption in their jobs.

In addition, the ministry should increase its investments in technical infrastructure and develop customized ICT tools tailored to the specific needs of government organizations. These tools and systems should be user-friendly and require minimal operational effort. Government systems, applications, and support

platforms should prioritize ease of use to facilitate greater acceptance and smooth integration into daily workflows. In addition, addressing potential sources of resistance and removing obstacles to the use of ICT is crucial to ensure that public servants perceive both the ease of use and the usefulness of ICT systems. In addition, government should continue prioritizing the policy and regulation development and improvement for supporting the users to ensure that the successful and sustainable use of ICT by public servants.

7.5.Limitation of the Study

The limitation of logistic regression consists of outlier possibilities since logistic regression uses only one predictor to apply in linear data relationships for continuous data. For logistic regression, this study developed a conceptual framework incorporating actual ICT use, which used different scale measurements by capturing two answer options in the dependent variable. In contrast, most constructs in the study were measured using seven Likert scales. The decision to use two-choice options lead to an unclear assessment of respondents' possibility of bias in the actual use of ICT due to poor model fit. Thus, this mismatch in measurement scales, especially between the behavioral intention and actual use of ICT, would lead to weak correlations and potentially biased findings. Wu and Du (2012) stressed the critical importance of using uniform scales and pointed out that similar scales should be used for both the system and its antecedents to ensure reliable results. Secondly, the study consists of limited data from the MoE, which limits moderating detection due to the imbalance of sample sizes in key demographic groups, such as gender and age.

Another limitation is that the study also faced empirical survey challenges due to the non-probability sampling using convenient sampling, which results in an unrepresentative view of the sample and selection bias. In addition, convenience sampling has the possibility of self-selection, which produced outliers in this kind of selection. These sample selection issues would not reflect the population characteristics and reduce the randomization of the sample in this study. Thus, the result could be less validity, accuracy, and statistical certainty in this study.

7.6. Future Research,

As an illustration of the limitation above, the study also have some dimension of additional gaps and improvement that can be conducted for future research in the field of adoption of technology. Firstly, this study only conducted a quantitative study, which can only provide a generalization of findings that have limited the reflection of public servants' ICT adaptation since the model can only explain 69.43% of the independent variable explanation for ICT adoption. In comparison, the other 30.57 % were not explained by the model in this study. Thus, a mixed method approach should be used to investigate public servants' ICT adoption for these future studies. It would provide more profound and more comprehensive insights than quantitative approaches. This mixed method will provide greater clarification and contextualization of quantitative findings.

Secondly, this study focused on the MoE, which led to limiting the generalizability of its findings. Thus, future studies should be conducted across various ministries to enhance the robustness and applicability of the findings for other public servants at other ministries. The various ministry sections could benefit from employing other constructs to assess ICT adoption comprehensively. Thirdly, this study was conducted without specifying the voluntary or mandatory context for public servants' ICT adoption, as the impact of social influence on behavioral intention varies between these contexts, as discussed by Venkatesh et al. (2003). The ICT usage in public servants' jobs is not clarified for each context in this study. Future studies should select a specific context to specify the ICT use type in mandatory or voluntary contexts to identify the public servants' ICT adoption situation in each context.

Fourthly, this study focused on the independent and dependent variables in the UTAUT model by ignoring other aspects that can be the determinants of ICT adoption, such as cultural aspects, the economic level, trust, and risk, which all these factors can be integrated into the studies. The future studies can be conducted by extending the UTAUT application.

Lastly, this study conducted a cross-sectional research design, collecting data at a single point in time due to time constraints. Prior studies by prominent

scholars have demonstrated the value of longitudinal research in understanding technology adoption processes (Suha Alawadhi & Anne Morris, 2008; Venkatesh et al., 2000; Venkatesh et al., 2003). Thus, future research should use a longitudinal design by collecting data across multiple periods to capture changes in independent variables over time and provide deeper insights into public servants' ICT adoption. Such an approach would enable a more robust interpretation of the UTAUT model's factors, its influence on behavioral intention, and the relationship between behavioral intention and actual ICT use in the adoption.

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Appendix A

The Original Items Adapted from the UTAUT Model for Piloting Interview

Construct	No	Description items
Performance expectancy	1	I find the ICT useful in my job.
	2	Using the ICT enables me to accomplish my tasks more quickly in my job.
	3	Using ICT increases your productivity.
	4	Using the ICT makes it easier to do my job.
	5	Using ICT in my job would enhance my effectiveness on my job.
	6	If I use ICT, I will get a rise.
	7	Considering all tasks, the general extent to which use of ICT could assist on the job.
Effort expectancy	8	My interaction with ICT would be clear and understandable.
	9	It would be easy for me to become skillful at using ICT.
	10	I would find the ICT ease to use.
	11	Learning to operate the ICT would be easy for me.
	12	It takes too long to learn how to use ICT to make it worth the effort.
Social influence	13	People who influenced my behavior think that I should use ICT.
	14	People who are important to me think that I should use ICT.
	15	The senior management of my organization has been helpful in the use of ICT in my work.
	16	In general, the organization has supported the use of ICT.
Facilitating condition	17	I have the resources necessary to use ICT.
	18	I have the knowledge necessary to use ICT.
	19	ICT is not compatible with ICT I use.
	20	A specific person is available for assistance with ICT difficulty.
	21	Using ICT fits into my work.
Behavioral intention	22	I intend to use the ICT in the future.
	23	I predict to use the ICT in the future.
	24	I plan to use the ICT in the future.
	25	I intend to use the ICT in the future.
	26	ICT adoption

Appendix B

The Question Validation Result

Items of construct adapted from UTAUT model	INF1	INF2	INF3	INF4	INF5	INF6	INF7	INF8	Freq
<i>performance expectancy</i>									
1. I find ICT useful in my job	√	√	√	√	√	√	√	√	8
2.Using the ICT enables me to accomplish my tasks more quickly in my job	√	√	√	√	√	√	√	√	8
3.Using ICT increases your productivity	√	√	√	√	√	√	√	√	8
4. Using the ICT makes it easier to do my job	√	√	√	√	√	√	√	√	8
5. Using ICT in my job would enhance my effectiveness on my job	√	√	√	√	√	√	√	√	8
6.If I use ICT, I will get a rise	×	√	×	×	√	√	√	√	5
7.Considering all tasks, the general extent to which use of ICT could assist on the job	√	√	√	√	√	√	√	√	8
<i>Effort expectancy</i>									
8.My interaction with ICT would be clear and understandable	√	√	√	√	√	√	√	√	8
9.It would be easy for me to become skillful at using ICT	√	√	√	√	√	√	√	c	8
10.It is easy for me to learn how to use ICT	√	√	√	√	c	√	c	√	8
11. Learning to operate the ICT would be easy for me	√	√	√	√	√	√	√	√	8
12.It takes too long to learn how to use ICT to make it worth the effort	√	√	√	√	√	√	√	√	
<i>Social influence</i>									
13.People who influenced my behavior think that I should use ICT	c	√	√	√	√	√	√	√	8
14.People who are important to me think that I should use ICT	√	√	√	√	c	√	√	√	8
15.The senior management of my organization has been helpful in the use of ICT in my work.	√	c	√	√	√	√	√	√	8

16.In general, the organization has supported the use of ICT	√	√	√	√	√	√	√	√	8
13.People who influenced my behavior think that I should use ICT	c	√	√	√	√	√	√	√	8
<i>Facilitating condition</i>									
17.I have the resources necessary to use ICT	√	√	√	√	√	√	√	√	8
18.I have the knowledge necessary to use ICT	√	√	√	√	√	√	√	√	8
19.ICT is not compatible with ICT I use	×	√	√	√	×	×	×	√	8
20.A specific person is available for assistance with ICT difficulty	√	√	√	√	√	√	√	√	8
21.Using ICT fits into my work	√	√	√	√	√	√	√	√	8
<i>Items and behavioral intention</i>									
I intend to use the ICT in the future	√	√	√	√	√	√	√	√	8
I predict to use the ICT in the future	√	√	√	√	√	√	√	√	8
I plan to use the ICT in the future	√	√	√	√	√	√	√	√	8
I intend to use the ICT in the future	√	√	√	√	√	√	√	√	8
The ICT adoption	√	√	√	√	√	√	√	√	8

*Noted: * Respondent's disagreement, √ respondent's agreement, C =Comment, Freq=Frequency*

Appendix C

The Concept of Code-Based Participant Perspectives

Code concept	Inductive code description	INF1	INF2	INF3	INF4	INF5	INF6	INF7	INF8	Code Frequency	Participants contribution
Performance expectancy											
Promotion and encouragement	Promotion encouragement	1		1						2	2
	Material encouragement	1	1	1	1			1		4	5
	Training encouragement		1		1					2	2
Effort expectancy											
	Ease of ICT use with learning					2		1		3	2
Facilitating condition											
	Necessary help and resource			2		1	1	1	1	6	5
Training	Training for capacity development	2	1	2	2	1		1	1	10	7
Government regulation	Government regulation	1			1	1				3	3
Internet access	Internet access	1		1		1	1			4	4

Appendix D

Question Items for the Survey

No. Items.	Construct	Adapted from
1. I would find the ICT useful in my job.	Performance expectancy	Venkatesh et al. (2003)
2. Using the ICT enables me to accomplish my tasks more quickly in my job.		Venkatesh et al. (2003)
3. Using ICT makes me more productive.		Soong et al. (2020)
4. Using the ICT makes it easier to do my job.		Venkatesh et al. (2003)
5. There should be promotion or encouragement in my job if I can efficiently use ICT. ³²		Barua and Thapar (2012)
6. Using ICT in my job would enhance my effectiveness on my job.		Venkatesh et al. (2003)
7. Considering all tasks, the general extent to which use of ICT could assist on the job.		Venkatesh et al. (2003)
8. I think that my interactions with ICT would be clear and understandable.	Effort expectancy	Venkatesh et al. (2003)
9. It would be easy for me to become skillful at using ICT.		Venkatesh et al. (2003)
10. It is easy for me to learn how to use ICT for my job.		Ustun et al. (2023)
11. Learning to operate ICT does not require much effort and is easy for me. ³³		Al-Shahrani (2016)

³² Original item: "If I use ICT, I will get a rise" is based on Venkatesh's concept. From the Cambodian public servant's perspective, the revision items were adapted from Barua and Thapar (2012) and Iyanda & Ojo, (2008) to reflect forms of encouragement and promotion including promotion, material, and training encouragement, which are expected to influence public servants' behavioral intention toward ICT adoption. The encouragement and promotion increase their performance expectations. Thus, ICT adoption depends on user's motivation and beneficial expectation.

³³ Original item: "I find the ICT would be easy for me to use," adopted from Venkatesh's concept, was modified to reflect Cambodian public servants' view that ease of learning ICT leads to immediate behavior change and encourages their decision to adopt it.

12. It takes too long to learn how to use ICT to make it worth the effort. ³⁴		Venkatesh et al. (2003)
13. My boss and colleagues who influenced my behavior think that I should use ICT.	Social influence	Venkatesh et al. (2003)
14. My senior leader is important to me to think that I should use ICT.		Venkatesh et al. (2003)
13. The senior management of my ministry has been helpful in the use of ICT in my work.		Venkatesh et al. (2003)
14. In general, the ministry has supported the use of ICT.		Venkatesh et al. (2003)
15. My working environment influences my intention to use ICT. ³⁵		Bawack and Kamdjoug (2018)
16. I am sure that most of the necessary help and resources for ICT will be available for my job ³⁶ .	Facilitating condition	Rabaa'i (2017)
17. I have the knowledge and training to use ICT for my job. ³⁷		Bawack and Kamdjoug (2018)

³⁴ Original item: "Learning to operate the ICT would be easy for me" adopted from Venkatesh's concept, the original item was modified since the Cambodia public servants thought that learning to operate the ICT may not be easy for them to use and they spent much time and effort to learn since the ICT are always updating. Korpelaine (2011) also study the ICT adoption in the way of learning to use the systems as the learning ICT use would impact on the ICT adoption.

³⁵ This question item was not determined by Venkatesh (2003). In the Cambodia context, the users could adopt the ICT when the working environment become more digitalized due to the government policy's introduction, organization's ICT management. Public servants will start to adjust themselves to the status quo adopting ICT in the jobs.

³⁶ The original item, "*I have the resources necessary to use ICT,*" adopted by Venkatesh et al. (2003), was modified to reflect the context of the Cambodian public sector. It is not only resource provision to support ICT use but also the emotional support to engage with ICT effectively, such as empathy from supervisors, positive care and affection expression, emotional reassurance, a sense of worth and belonging in learning, and using technology. Often overlooked in traditional resource-based approaches, these emotional supports enable users to adopt ICT use. Thus, the original item was revised based on the context to cover resource-based and affective emotional support. These emotional supports are also discussed by Esteves & Joseph (2008) and Alshammari & Alkhwalidi (2025) on emotional support for digital assistants to persistently adopt ICT to stay on task in the situation ICT use problems and affect the public servants ICT use.

³⁷ The original item, "*I have the knowledge to use ICT,*" from Venkatesh et al. (2003) was modified to better reflect the context of public servants' perspective. This items' modification acknowledges that, formal training and individual knowledge are perceived as a critical enabler

18. I think that the regulation released from government digital policies encourage me to adopt the ICT. ³⁸		Al-Shafi (2009)
19. There are technical people or colleagues available for assistance with ICT difficulties.		Venkatesh et al. (2003)
20. Using ICT in my ministry is consistent with my experience in using other ICT I have used. ³⁹		Wang et al. (2017)
21. Using ICT fits into my work style.		Venkatesh et al. (2003)
22. My organization has internet access for using ICT. ⁴⁰		Soong et al. (2020)
23. I intend to use the ICT in the future.	Behavioral intention	Lallmahomed et al. (2017)
24. I predict I would use ICT in the future.		Lallmahomed et al. (2017)
25. I plan to use the ICT in the future.		Lallmahomed et al. (2017)
26. To the extent possible, I would use ICT to do different things.		Lallmahomed et al. (2017)
27. Do you adopt ICT at your job.	The actual ICT use	

for effective ICT use, particularly in response to ongoing technological advancements and the introduction of new digital tools.

³⁸ This item was not originally included in Venkatesh et al. (2003), but it was added to reflect the Cambodian context, where public servants are more likely to adopt ICT when guided by formal legal frameworks. Institutional factors such as ministry regulations and national digital policies serve as authoritative drivers that legitimize and reinforce ICT adoption within government operations. According to Al-Shafi (2009) and Esteves and Joseph (2008), the legal and framework basis considered as important part of e-Government adoption.

³⁹ The original item, “*ICT is not compatible with ICT I use*” from Venkatesh et al. (2003) was modified due to the ICT that public servants are using are not different from the ICT that they are using daily such as computer, communication, and other ICT tools. The users would like to use ICT when the ICT are congruent with the way that they enable to interact (Carter & Bélanger, 2005)

⁴⁰ This item was not originally determined by Venkatesh et al. (2003), but it was added to reflect the Cambodian context. As the internet access make the public servants to adopt the ICT. When the lack of internet, it makes them face the challenges to adopt ICT.

Appendix E

Factor Rotation Before Removing Items

Component	PE	BI	FC	SI	EE
PE4	0.824				
PE6	0.813				
PE3	0.805				
PE2	0.778				
PE7	0.680				
PE1	0.652	0.447			
PE5	0.634				
EE2	0.628				
EE3	0.516				0.503
EE1	0.489				0.474
BI2		0.833			
BI1		0.831			
BI3		0.825			
BI4		0.813			
FC4			0.692		
FC3			0.684		
FC1			0.678		
FC2			0.611		
SI4			0.562		
SI3			0.544	0.433	
FC7			0.529		
SI5			0.526	0.401	
FC6		0.406	0.459		
SI1				0.765	
SI2				0.727	
EE4					0.680
EE5					0.556
FC5			0.532		0.555
% eigenvalue (Total= 15.276)	10.881	2.803	2.105	1.1	1.085
% Variance Total =64.19%)	38.862	10.011	7.517	3.928	3.875

Appendix F



October 04, 2024

H.E.Dr. EANG Sophalleth
Minister of Ministry of Environment, Cambodia

Subject: Request for permission and support for Mr. Kouy Pov to distribute questionnaires to civil servants of the Ministry of Environment for conducting his research.

Your Excellency,

I am writing as an academic supervisor on behalf of my Master of Public Policy student, Mr. Kouy Pov, asking for permission to collect data and information for the development of a thesis to complete the master's degree. He is a Cambodian student working in your ministry and is currently enrolled in the JDS Master's program at the Graduate School of Governance Studies at Meiji University in Tokyo, Japan.

As a requirement for graduating from Meiji University, he must write a thesis to complete the program. The university allowed him to conduct the research title "**The factors affecting civil servants' ICT adoption in e-government.**" In this regard, he would like to request permission and support to coordinate the collection of data and information through an online survey questionnaire to public officials who use ICT in their work in the Ministry of the Environment. He will distribute an online questionnaire to respondents for all general directorates within the ministry.

We greatly appreciate your kind permission and support.
Yours sincerely,

.....*Akiko Izumo*.....
IZUMO Akiko, PhD
Professor at Graduate School of Governance Study, Meiji University
1.1, Kanda-Surugadai, Chiyoda-Ku, Tokyo, Japan
Email: akiko_izm@meiji.ac.jp

Appendix G

Questionnaire

My name KOUY POV, a master's student in the Graduate School of Governance Studies, Meiji University, Japan. To complete my master's degree requirements, I am currently conducting research study on the topic “**the factors affecting public servants’ ICT adoption in e-Government in Cambodia**”. In this survey, it will reflect the awareness of public servants on using and accepting ICT tools in the workplace. Your participation will play a very important role as input for improvement of e-Government policies and insightful information for ICT adoption among public servants.

Confidential Clause; The information collected in this survey will be used strictly for academic purposes only. All data will be treated with a high level of confidentiality to ensure the anonymity of all survey participants. Your participation is completely voluntary. You have the right to request the withdrawal and/or cancellation for your response at any time.

I would like to be grateful for your cooperation and participation. If you have any problems, please feel free to contact me for personal information

Name KOUY POV, Email: kouypov99@gmail.com, Telegram: 089962312

Section I: General Information

1. Gender
 - ☐ 1. Male
 - ☐ 2. Female
 - ☐ 3. Other
2. How old are you?
 - ☐ 1. 18 - 29 years old
 - ☐ 2. 30 - 39 years old
 - ☐ 3. 40 - 49 years old
 - ☐ 4. 50 above
3. What is education?
 - ☐ 1. High school Diploma
 - ☐ 2. Associate degree
 - ☐ 3. Bachelor's degree
 - ☐ 4. Master's degree
 - ☐ 5. PhD degree
 - ☐ 6. Other
4. What is your technical position?
 - ☐ 1. Contract official
 - ☐ 2. Official
 - ☐ 3. Vice chief office
 - ☐ 4. Chief of office
 - ☐ 5. Deputy Director
 - ☐ 6. Director
 - ☐ 7. Deputy Director General

- ☐ 8. Director General
- ☐ 9. Other
5. Working experience using ICT at your workplace
- ☐ 1. Less than 5 years
- ☐ 2. 5-9 years
- ☐ 3. 10-29 years
- ☐ 4. 30 years above
6. What kind of ICTs tools you use in your working place?
- You can choose more than one.
- ☐ Hardware (computer, printer, scanners copy machine, Tablet, Phone...)
- ☐ Microsoft office (word, Excel, PowerPoints...)
- ☐ Internal application (MoE Amin, SARMIS, HRMS, FMIS...)
- ☐ Communication tools (Telegram, what's up, Facebook Messenger, tweeter, email).
- ☐ if other ICT, please describe.....

Question items	1= strongly disagree, 2=Disagree, 3= Somewhat disagree, 4= Neither agree nor disagree, 5= Somewhat agree, 6= Agree, 7=Strongly agree						
I. Performance expectancy							
7. I would like to find the ICT useful in my job.	1	2	3	4	5	6	7
8. Using the ICT enables me to accomplish my tasks more quickly in my job.	1	2	3	4	5	6	7
9. Using ICT makes me more productive.	1	2	3	4	5	6	7
Using the ICT makes it easier to do my job.	1	2	3	4	5	6	7
10. There should be promotion or encouragement in my job if I can efficiently use ICT.	1	2	3	4	5	6	7
11. Using ICT in my job would enhance my effectiveness on my job.	1	2	3	4	5	6	7
12. Considering all tasks, the general extent to which use of ICT could assist on the job.	1	2	3	4	5	6	7
II. Effort expectancy:							
13. I think that my interactions with ICT would be clear and understandable.	1	2	3	4	5	6	7
14. It would be easy for me to become skillful at using ICT.	1	2	3	4	5	6	7
15. It is easy for me to learn how to use.	1	2	3	4	5	6	7
16. Learning to operate ICT does not require much effort and is easy for me.	1	2	3	4	5	6	7

17. It takes too long to learn how to use ICT to make it worth the effort.	1	2	3	4	5	6	7
III. Social influence							
18. My boss and colleagues who influenced my behavior think that I should use ICT.	1	2	3	4	5	6	7
19. My senior leader is important to me think that I should use ICT.	1	2	3	4	5	6	7
20. The senior management of my organization has been helpful in the use of ICT in my work.	1	2	3	4	5	6	7
21. In general, the ministry has supported the use of ICT.	1	2	3	4	5	6	7
22. My working environment influences my intention to use ICT.	1	2	3	4	5	6	7
IV. Facilitating condition							
23. I am sure that most of the necessary help and resources for ICT will be available for my job.	1	2	3	4	5	6	7
24. I have the knowledge and training to use ICT for my job.	1	2	3	4	5	6	7
25. I think that the regulations released from ministerial digital policies encourage me to adopt ICT.	1	2	3	4	5	6	7
26. There are technical people or colleagues available for assistance with ICT difficulties.	1	2	3	4	5	6	7
27. Using ICT in my ministry is consistent with my experience in using other ICT I have used.	1	2	3	4	5	6	7
28. Using ICT fits into my work style.	1	2	3	4	5	6	7
29. My organization has internet access for using ICT.	1	2	3	4	5	6	7
V. Behavioral Intention							
30. I intend to use the ICT in the future.	1	2	3	4	5	6	7
31. I predict I would use ICT in the future.	1	2	3	4	5	6	7
32. I plan to use the ICT in the future.	1	2	3	4	5	6	7
33. To the extent possible, I would use ICT to do different things.	1	2	3	4	5	6	7
34. Do you adopt the ICT in your job	Please Select: Yes or No						

Submitted to the Faculty of the Graduate School of Governance Studies
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Meiji University, Japan
2025

Title of Thesis:

Local Government Employees' Motivation:

Examining the Impact of Demographic
Characteristics in Pahang, Malaysia

Governance Program,
The Graduate School of Governance Studies

Name of Supervisor: Kimura Shunsuke

Name of Author: Mohd Noridzuan Bin Jamil

Completion in: September 2025

Abstract

The level of motivation among public servants in Pahang local governments has been decreasing in recent years, and be a major concern, especially in relation to service delivery and organizational performance. This paper examines the influence of intrinsic and extrinsic motivation on job satisfaction, as well as differences in motivation across demographic variables, and the reasons for these differences. A sequential mixed-methods design was employed, involving a quantitative survey of 505 public servants in 11 local governments and qualitative interviews with 10 senior officials. The quantitative results showed that extrinsic motivation was a stronger determinant of job satisfaction than intrinsic motivation. Working conditions, peer relationships, supervisor relationships, monetary rewards, and organizational policy were all significant extrinsic factors. For intrinsic motivation, only achievement had a significant effect. There were significant motivational differences based on gender and marital status, with male and married employees reporting higher motivation than female and single employees. There were no significant differences based on location, job position, or seniority. The qualitative analysis revealed six reasons for the gender-based motivational disparities: male-friendly workplace policies, exclusion from informal networks, limited advancement opportunities, work-family conflict, lack of mentorship and supervisor support, and traditional gender expectations. For marital status, two reasons emerged: a sense of family responsibilities, and pride from family recognition. The results indicate that motivational experiences are influenced by organizational limitations, social expectations, and family responsibilities. These can be addressed through inclusive and demographically sensitive HR practices to improve employee motivation and service delivery in local governments.

Table of Contents

Abstract	i
Table of Contents	ii
Acknowledgments	iv
List of Tables	v
List of Figures	vi
List of Abbreviations	vii
Chapter 1: Introduction	1
1.1. Introduction	1
1.2. Background of Study	1
1.3. Problem Statement	4
1.4. Purpose of the Study	7
1.5. Research Objectives	8
1.6. Research Questions	8
1.7. Hypotheses of the Study	8
1.8. Scope of the Study	9
1.9. Significance of the Study	10
1.10. Conceptual Framework	11
Chapter 2: Literature Review	12
2.1. Introduction	12
2.2. Theory of Motivation	12
2.2.1 Content Theories	12
2.2.1.1 Maslow's Theory	12
2.2.1.2 David McClelland (Need for Achievement) Theory	14
2.2.1.3 Alderfer's ERG Theory	15
2.2.1.4 Two-Factor Model (Herzberg's) Theory	15
2.2.1.5 X-Y Theory	17
2.2.2 Process Theories	18
2.2.2.1 Expectancy Theory	18
2.2.2.2 Goal Setting Theory	19
2.2.2.3 Equity Theory	19
2.3. Why Maslow's Hierarchy of Needs and Herzberg's Two-Factor Theory Used in Current Study?	20
2.4. The Relation Between Maslow's Theory and Herzberg's Theory	21
2.5. Extrinsic Factors (Hygiene Factors) Influencing Job Satisfaction	24
2.5.1 Organization Policy	25
2.5.2 Relation with Peers	26
2.5.3 Relation with Supervisor	26
2.5.4 Money	27
2.5.5 Working Conditions	28
2.6. Intrinsic Factors (Motivators) Influencing Job Satisfaction	29
2.6.1 Achievement	29
2.6.2 Advancement	30
2.6.3 Work Itself	31
2.6.4 Recognition	32
2.6.5 Growth	32
2.7. Chapter Summary	33

Chapter 3: Research Methodology	34
3.1. Introduction	34
3.2. Research Design	34
3.3. Population and Sampling	35
3.3.1. Pre-Data Collection Procedure	40
3.4. Research Instrument.....	41
3.5. Pilot Study for Quantitative Phase	45
3.6. Data Collection Process.....	46
3.7. Data Analysis	48
3.8. Chapter Summary.....	50
 Chapter 4: Results & Findings	 51
4.1. Introduction	51
4.2. Descriptive Statistics.....	51
4.3. Pre-Test Analysis.....	53
4.4. The Results of Multiple Linear Regression	56
4.5. Comparison of Employee Motivation Factors by Urban-Rural	60
4.6. Comparison of Employee Motivation Factors by Gender	61
4.7. Comparison of Employee Motivation Factors by Marital Status	63
4.8. Comparison of Employee Motivation Factors by Seniority	65
4.9. Comparison of Employee Motivation Factors by Job Position	66
4.10. Summary of Hypotheses Testing.....	67
4.11. Summary of Significant Differences of Employee Motivation Factors by Demographics.....	68
4.12. Interview Results.....	69
4.13. Chapter Summary.....	96
 Chapter 5: Discussions & Conclusions	 97
5.1. Introduction	97
5.2. Discussions.....	97
5.2.1 RQ1: Significant Motivation Factors Influencing Job Satisfaction	97
5.2.2 RQ2: Differences in Motivation Factors by Demographic Groups	99
5.2.3 RQ3: Underlying Causes of Identified Demographic Differences	100
5.3. Conclusions	114
5.4. Limitations.....	117
5.5. Suggestions for Future Research	117
5.6. Policy Implications and Recommendations	118
 References	 120
Appendices	134



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Local Government Employees' Motivation:
Examining the Impact of Demographic Characteristics in Pahang, Malaysia

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List of Tables

Table 1: Population Breakdown of Public Servants in Pahang LG	36
Table 2: Sample Size Determination Using Krejcie & Morgan Table	38
Table 3: Number of Questions in Each Section of the Questionnaire	41
Table 4: Reliability Test for Research Instrumentation (n = 32)	46
Table 5: Analysis Methods	49
Table 6: Socio-demographic Profile of Respondents (n=505)	52
Table 7: Interpretations of The Relationship Strength.....	54
Table 8: The Results of Pearson Correlation Analysis.....	54
Table 9: Multiple Regression Analysis of Motivation Factors on Job Satisfaction.	56
Table 10: Interpretations of R-Value by Cohen (1988).....	57
Table 11: VIF Values of Independent Variable.....	58
Table 12: The Most Significant of Motivational Factors to Job Satisfaction.	59
Table 13: T-test Results - Motivation by Location (Urban vs Rural).....	60
Table 14: T-test Results - Motivation by Gender	61
Table 15: T-test Results - Motivation by Marital Status	63
Table 16: T-test Results - Motivation by Seniority	65
Table 17: T-test Results - Motivation by Job Position	66
Table 18: Summary of Hypothesis Testing Results	67
Table 19: The Summary of Significant Differences of Employee Motivation Factors by Demographics	68

List of Figures

Figure 1: Malaysia Government Effectiveness Index 2018-2023	5
Figure 2: Conceptual Framework	11
Figure 3: Maslow's Hierarchy of Needs	14
Figure 4: The Correspondence between Maslow and Herzberg	22
Figure 5: The Parallels Among the Need Based Perspectives on Motivation	22
Figure 6: The Steps of This Research Design	35
Figure 7: Thematic Map of Codes from Transcripts of Interview (Why men are more motivated than women).....	90
Figure 8: Thematic Map of Codes from Transcripts of Interview (Why married are employees more motivated than single).....	95

List of Abbreviations

CG	Central Government
HR	Human Resource
HRM	Human Resource Management
LG	Local Government
LG-SRS	Local Government-Star Rating System
M	Mean
MHLG	Ministry of Housing and Local Government
MO	Medical Officers
NAD	National Audit Department
NEM	New Economic Model
OECD	Organisation for Economic Co-operation and Development
p	p-value
PMC	Pearson Product-Moment Correlation
PSC	Public Service Commission
PSD	Public Service Department
RO	Research Objective
RQ	Research Question
SD	Standard Deviation
SG	State Government
SPSS	Statistical Package for the Social Sciences
SRS	Simple Random Sampling
WMA	World Medical Association
β	Beta Coefficient

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter discusses the background of research for the study on work motivation among Local Government (LG) employees. It includes the research problem, questions, and objectives, as well as the significance of the study.

1.2 Background of Study

Public service plays a vital role in the lives of Malaysians, serving as a bridge between the government and the citizens. These services are designed to promote the well-being of individuals and society, and they are delivered through three administrative levels: the Central Government (CG), State Government (SG), and LG. Among these, the LGs, or Local Authorities, as defined by Hamzah & Habibah (2009), are the closest to the people. LGs ensure the welfare and sustainability of communities by performing planning tasks, executing these plans, monitoring their effectiveness, and delivering services with fairness and transparency.

The LG Act of 1976 (Act 171) gives Malaysia's LGs the power to levy taxes, which includes the assessment that is their main source of income. LGs can enforce by-laws in their areas.¹ Extensive revenue from assessment tax is utilized for financing the functions of LGs.² LGs can also make any internal policy regarding employees' benefits and payment.³ Thus, LGs were thrust into seriously managing their human resource (HR). Pfeffer (1998) stated that when crises arise⁴, Human Resource Management (HRM) becomes crucial to the success and

¹ By-laws are sanctioned by provisions of the Constitution and various Acts of Parliament such as LG Act 1976 (Act 171), Town and Country Planning Act 1976 (Act 172), Drainage, Road and Building Act 1974 (Act 133). According to Section 127 of the LG Act 1976, councils may charge assessment taxes on properties within their local area.

² This revenue is used to fund the functions of local authorities, including the provision of public amenities, the maintenance of administrative areas and other operating expenditures like staff salary, allowances and other staff-related expenditures.

³ As contained in Section 17 (3) of Act 171 such as bonuses, financial support, medical assistance, insurance coverage against mishap, loans for cars and housing, among others.

⁴ For example, LG challenges were widened due to the global economic downturn and the COVID-19 pandemic between the late 2010s and 2020s. These events piled pressure on LGs to provide services with fewer means, even as demand was on the rise.

competitiveness of the LG. However, the service delivery of quite a number of LGs is still unsatisfactory.

This led the LG in Pahang to be continuously criticized (Ibrahim & Abd. Karim, 2004). The public critiques affect the image of the LGs⁵, as citizens have a direct encounter with LGs and financially contribute through taxes (Kamaruddin, 1999). The roles of LGs in Pahang have become progressively more complex over time as these authorities are needed to perform more for a growing and changing population. LGs are now faced with bigger task trying to improve the quality of service within constrained resources. Therefore, they used most of their employees to deliver the desired services.

The issue of public servant motivation is also highlighted by the Director-General of Public Service (KPPA), YBhg. Tan Sri Wan Ahmad Dahlan bin Haji Abdul Aziz, who confirmed that Malaysia needs to continue working to enhance public service capabilities.⁶ Rambli (2001) established that attendance, punctuality, discipline, work quantity, work quality and cooperation serve as performance indicators of work motivation and employee performance. Multiple research investigations demonstrate that motivation at work plays a vital role in achieving better performance outcomes. Research by Che Mohd et al. (2017) show that performance depends on personality traits together with work motivation and leadership style and learning autonomy. According to Diamantidis & Chatzoglou (2018), workplace positivity together with supportive management lead to major enhancements in employee performance levels. Persistent challenges in LGs include poor enforcement capabilities and unmotivated staff members together with questions about integrity and financial management inefficiencies (Rasli et al., 2020).

The Ministry of Housing and Local Government (MHLG) fast-tracked the implementation of the Local Government-Star Rating System⁷ (LG-SRS) to tackle

⁵ LGs, as the third tier of governance in Malaysia, are responsible for the provision of urban planning, environmental management, economic development and other essential services. They are also in charge of collecting taxes and revenues.

⁶ According to his media announcement on 4 February 2025, he stresses that PSD continues its dedication to providing civil servants with the necessary skills for handling new challenges while supporting the delivery of high-quality services. The welfare and well-being of civil servants stand as one of PSD's five core initiatives which aims at boosting workforce resilience and motivation levels (Mat Isa, 2025).

⁷ The grading system operates as the primary assessment tool for standardized evaluation of Malaysian LG's performance. The assessment integrates HRM as its essential core through strategic workforce planning and employee relations, with training and overall employee welfare programs.

these problems. The actual situation shows that Pahang LGs consistently face difficulties in reaching high marks in the LG-SRS system. The state's LGs have managed to place only two organizations among the top 50 positions out of 153 LGs across the nation. The poor performance of LGs in Pahang demands immediate research on employee motivation because improper HRM practices could serve as the main barrier to success.⁸

The LGs within Pahang introduced performance-based incentive systems to enhance both worker motivation and work results. Pahang civil servants received a one-and-a-half-month salary bonus from 2022 to 2024 for living cost support and motivational purposes to enhance their service delivery performance. The effectiveness of extrinsic motivation through financial incentives remains under debate in current discussions. Research indicates that after employees gain satisfaction from their basic requirements, financial incentives stop being effective motivators (Pratheepkanth, 2011). The HR Manager needs to discover alternative motivation factors across their organization to demonstrate their significance for total organizational performance enhancement.

Research shows that motivated and committed LG employees demonstrate superior work productivity, together with enhanced job satisfaction and higher organizational loyalty, according to Robbins (2003) and Teh (2008). The extensive size of Pahang LGs, which has between 200-1000 personnel for each organization, demands proper employee commitment and motivation to reach organizational objectives and enhance public service performance. An LG's achievement depends on how well it manages its HRs for development. The goal of this research is to identify effective strategies that LGs in Pahang can use to improve their employees' motivation toward better community service.

⁸ The study of work motivation alongside HRM has continued for many decades because motivation functions as a critical performance driver within organizations. Organizations utilize intrinsic and extrinsic motivation programs as tools for employee recruitment and the retention of qualified personnel.

1.3 Problem Statement

Any organization depends heavily on HRs for success, but public institutions require them particularly due to how employee performance directly affects national and local governance functions. Public servants perform as both policy implementers and economic and national development drivers who address community needs (Zainudin et al., 2024; Shahibudin et al., 2015). LG employees bear substantial responsibility for maintaining essential services that directly influence citizen daily life activities according to Manaf et al. (2022).

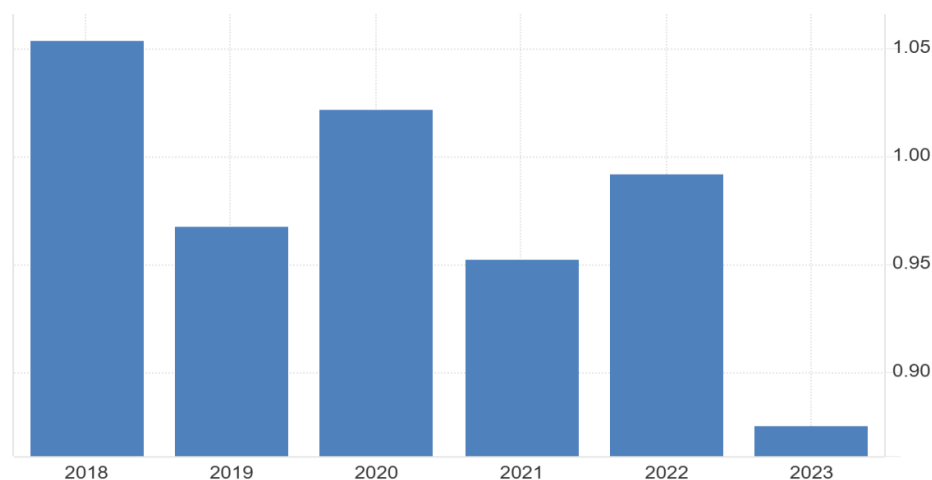
The World Bank's 2023 data⁹ indicate a serious crisis in Malaysia's government effectiveness when it reveals a significant drop to 0.87537¹⁰ (*as shown in Figure 1*) which demonstrates deteriorating public service quality as well as civil service competency and policy execution. Public sector performance has reached a critical failure point based on the downward trend which remained stagnant during the past five years and worsened in 2023. Human capital deficiencies in public service have become a primary reason for government performance decline (Majid et al., 2019) because low employee motivation has proven to be a critical factor in government inefficiency (Mohamad Zam et al., 2024). People are becoming more frustrated because they now demand efficient services that influence their lifestyle quality.

A disengaged and demotivated workforce creates substantial governance risks because it impedes vital reform processes while damaging public confidence in the system. Malaysia's public institutions will face further deterioration in efficiency and service delivery while losing citizen trust because motivation issues are not resolved. The public sector requires immediate strategic intervention to rebuild workforce motivation that will enable employees to fulfill the Malaysian people's increasing service expectations.

⁹ The World Bank calculates the Government Effectiveness Index (GE) as part of its Worldwide Governance Indicators (WGI), which assess governance quality across over 200 countries, including Malaysia. This index measures perceptions of the quality of public services, the competence of civil servants, the independence of the civil service from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

¹⁰ The score ranges from approximately -2.5 to +2.5, where: +2.5 = Very effective governance, 0 = Average, and -2.5 = Very weak governance.

Figure 1: Malaysia Government Effectiveness Index 2018-2023



source: World Bank Data

(<https://data.worldbank.org/indicator/GE.EST?end=2023&locations=MY&start=1996&view=chart>)

The 2018 Civil Servants' Engagement Index¹¹ demonstrated Malaysian civil servants' motivation levels at 73.9% which fell far short of the target benchmark of 80% engagement. The engagement and motivational levels of public sector employees remain considerably low as indicated by research which results in service delivery inefficiencies and delays (Selamat et al., 2021). Public institutions struggle to fulfill public demands because the sector-wide lack of motivation continues to persist, even though many public servants demonstrate dedication to their work.

The New Economic Model (NEM) report evaluates the Public Service Commission (PSC) by pointing out its inability to both keep public servants motivated and maintain their integrity when building a performance-driven culture. Establishing an efficient and professional civil service that delivers high performance needs immediate attention. The contemporary globalized world demands civil servants to receive stronger motivation for understanding economic trends and international best practices (OECD, 2016).

¹¹ The survey was extensive, covering 262,251 respondents across 25 ministries, representing roughly 89.1% of the civil servant population. With overall engagement at 63% in 2018, down from 69.8% in 2015 the government had not yet reached its target trajectory toward 75% engagement by 2020. The latest survey after 2018 was done in late 2024 (7 to 22 November 2024), but no official data has been released yet.

The Public Service Department (PSD) has recently expressed concerns about declining public sector motivation by highlighting poor work hour compliance and staff leaving early while noting high rates of absenteeism and fake sick leave documentation (Berita Harian, 2023; Harian Metro, 2023). The aggregate impact of these discipline issues creates substantial operational inefficiencies of public service that waste resources and decrease public confidence in government services (OECD, 2011). The service quality declines, and taxpayer costs rise as a result of public servants disengaging from their duties, thus requiring immediate attention to motivational problems.

The challenge of low motivation in the public sector leads skilled employees to choose employment opportunities in private companies or different public institutions that offer better compensation, together with career advancement prospects. Any organization requires motivated workers as valuable assets, yet the loss of these workers represents a major organizational challenge. In 2022, Medical Officers (MO) from Malaysia's public sector experienced a high rate of departure with more than half of them choosing positions in private hospitals and across borders.¹² Ministry of Health data indicates that MO who left the public health service in 2022 surpassed the total number of resignations from the previous two pandemic years combined (1,354 versus 1,279). The number of medical officers who left their positions increased by 1,131 % from 2017 to 2022 (Galen Centre for Health & Social Policy, 2023). According to Jamaludin (2024) employees commonly choose positions that offer improved benefits because this pattern occurs often in profit-driven private organizations and multinational firms. Public organizations need to focus on talent retention and establish motivating work environments that support long-term career development to stop this occurrence.

The growing problem of low motivation also affects LG workers in Pahang state and other regions similarly. LG employees struggle to perform their duties at an effective level, particularly when it comes to job enforcement and implementation tasks. The National Audit Reports constantly report multiple performance weaknesses in LG operations. The National Audit Department (NAD) has identified parking management and advertising board regulation together with business licensing and procurement and state road maintenance as the main problem areas

¹² The main reason behind this shift lies in the challenging conditions of work along with inadequate compensation and restricted career progression in the Malaysia public sector framework.

(NAD, 2023, 2022). The audit reveals that ineffective parking management and regulation has triggered a substantial revenue decrease while inadequate procurement monitoring has produced financial instability in Pahang LGs. In addition, public safety and operational efficiency stand at risk because LGs have neglected their responsibility to enforce advertising board rules and business license regulations (NAD, 2023). The ongoing operational problems stem directly from employee motivation issues because they create both financial costs and endanger public safety. Better service delivery and public trust depend on the successful improvement of LG staff motivation levels.

Moreover, MHLG Framework for Empowering LGs 2021 identifies various weaknesses in local governance, especially in the area of HRs (MHLG, 2021). The report highlights issues such as skill gaps, limited technical capacity, and lack of training among staff, which indirectly affect the motivation of employees to carry out their job effectively and influence the ability of employees to execute their essential responsibilities. Understanding what drives public servants to be motivated represents a critical need that helps resolve the current challenges. Even though there are a lot of previous studies about work motivation, it still does not fully explain the phenomenon as they lack investigations specific to the LG context. This research aims to address an existing knowledge gap by studying work motivation in LG institutions, especially in demographics characteristic because this essential factor influences public servant satisfaction and work quality (Mahazril et al., 2012).

1.4 Purpose of the Study

Employee motivation has many definitions, but for this study will use Robbins' definition (as cited in Ramlall, 2004): *“the willingness to exert high levels of effort toward organizational goals, conditioned by the effort’s ability to satisfy some individual need”*. Although employee motivation is a key topic in public and private sector research, there hasn't been a study focusing on what motivates LG employees in Malaysia. This study aims to compare and analyze the motivational factors of these employees in LG and the effect of demographics on work motivation, to provide insights for LG practitioners and HR Managers.

Organizations need to identify employee motivations together with their most desired rewards for sustaining high-quality talent. Managers, together with HR professionals, should develop work environments that produce happier and more productive employees. The current emphasis on top performers requires organization to understand employee motivation and reward preferences. Thus, organizations must understand employee motivations because this knowledge serves as a foundation for retaining staff who bring organizational expertise and knowledge.

1.5 Research Objectives

- RO1: To identify the significant factors of extrinsic and intrinsic in relation to LG employee motivation.
- RO2: To investigate and identify if intrinsic and extrinsic motivation factors differ or agree as differentiated by demographics.
- RO3: To explore the underlying reasons or causes of any differences in motivation based on demographic groups.

1.6 Research Questions

- RQ1: What are the significant motivation factors that influence job satisfaction among LG employees in Pahang?
- RQ2: Are there any significant differences in motivation factors when grouped by demographic characteristics¹³?
- RQ3: What are the underlying causes or explanations for the significant differences identified in Research Question 2?

1.7 Hypotheses of the Study

- H1: Extrinsic motivation has a more significant relationship with job satisfaction than intrinsic motivation.

¹³ The demographic characteristics in this study cover location (urban vs rural), gender (male vs female), marital status (married vs single), seniority (senior vs junior), and job position (managerial vs non-managerial)

- H2a: There is a significant difference in motivational factors between urban and rural employees.
- H2b: There is a significant difference in motivational factors between male and female employees.
- H2c: There is a significant difference in motivational factors between married and single employees.
- H2d: There is a significant difference in motivational factors between senior and junior employees.
- H2e: There is a significant difference in motivational factors between managerial and non-managerial employees.

1.8 Scope of the Study

While previous research has identified various HR development factors that influence employee motivation, this study focuses specifically on public servants working within LGs in the state of Pahang, Malaysia. The research targets civil servants from different job positions and service grades across selected LGs in the state. As of July 1, 2022, Malaysia has a total of 152 LGs, according to statistics from the MHLG. However, this study limits its scope to selected LGs within Pahang. The selection is based on the following criteria:

1. Geographical size: Pahang stands as the biggest state in Peninsular Malaysia which provides an extensive and comprehensive research area for this study.
2. Public servant population: The state contains a substantial number of public servants who provide researchers with a wide-ranging and dependable population to analyze.
3. Economic and resource diversity: The study benefits from Pahang's multiple income streams and financial resources which include HR development programs to examine work motivation from various angles.
4. Urban and rural composition: The state contains multiple LG types including four City Councils as Urban LGs and seven District Councils as Rural LGs which enables the study to analyze motivational elements between urban and rural areas.

1.9 Significance of the Study

Research on work motivation is widespread in Western countries since the way people behave depends on the organization and its culture. The reasons that motivate people in Western countries are not the same in Malaysia, since their companies and leadership have distinct cultures, approaches and levels of development, as well as different environments (Gom et al., 2015). As the workplace changes in Malaysia, it creates new challenges while also sparking new hopes, even though the results of earlier work motivation studies in the country are known. Therefore, these issues are examined by researchers because people and jobs are always evolving.

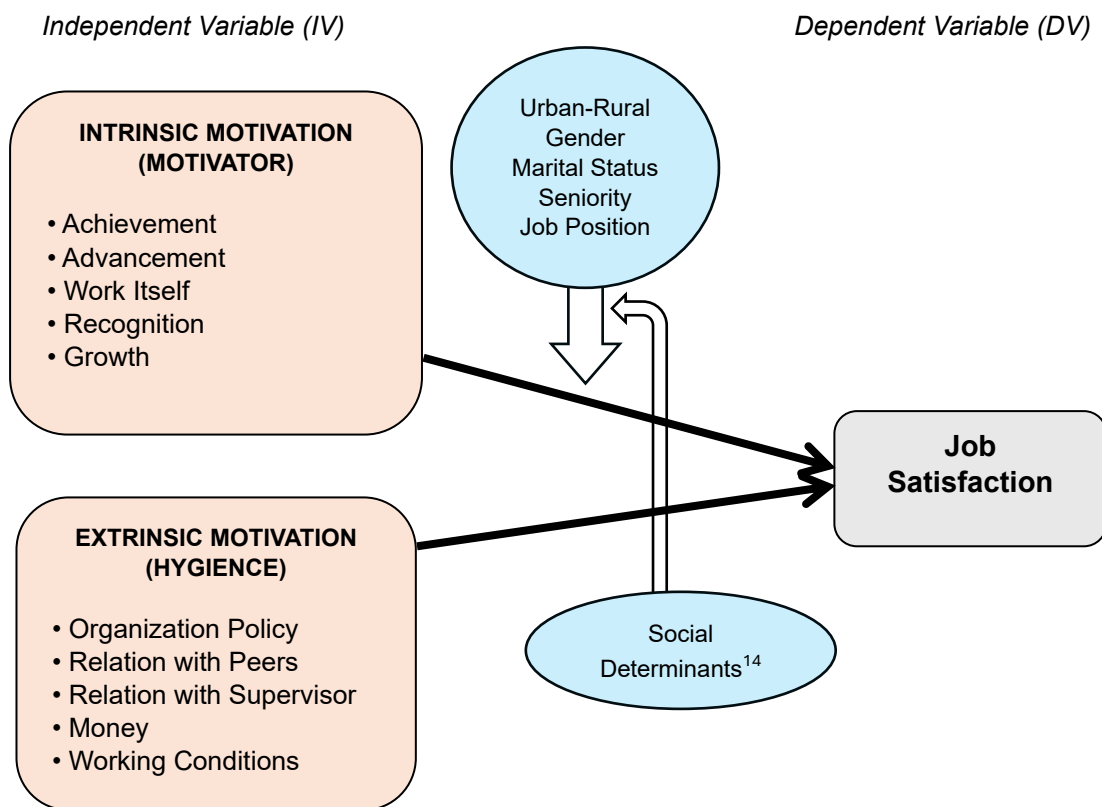
The study explores what motivates people by considering their gender, marital status, length of employment and their position in the company, and looking into these specific variables helps to understand the motivation of Malaysia's public sector in detail. Research on workplace motivation is mostly conducted in the private sector, as financial achievements motivate their employees. Yet, civil servants need to be motivated since they carry out important duties and are trusted by the public. The motivation and commitment of public servants affect their work performance and also the overall performance and ethical standards of the government organization. While many studies focus on what motivates people in CG & SGs, those who serve the public at the local level have not been examined as much by researchers. This is the reason why this thesis conducts motivation research in a LG area in Malaysia that is rarely explored, despite its significant role in Malaysia's public service.

The research focuses on the public sector by naming the main motivators and demonstrating how different demographic groups are affected by them. Moreover, the document is useful for educating LG personnel on HR matters. As a result, the findings from the research might lead to better approaches to HR management at LG agencies. It matters because it increases the knowledge about what drives public servants in Malaysia's LG. The findings can help both policymakers and HR managers, as well as those working in the public sector, to improve employee engagement and service delivery. The research aims to support the creation of a Malaysian LG team that is accountable, excels in performance, and is motivated.

1.10 Conceptual Framework

Accordingly, this research conceptual framework is developed based on the theoretical framework explained in Chapter 2, as presented in Figure 2 below.

Figure 2: Conceptual Framework



Source: Image by author

¹⁴ Social determinants, in this study, refer to the non-individual social conditions and structures, for example family dynamics, gender role expectations, peer networks, and cultural norms, that shape employees' work motivation and job satisfaction. These determinants are external to the individual but create the social context in which motivation is either supported or constrained.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review on the ten key variables as independent variables: five extrinsic motivations, five intrinsic motivations, and job satisfaction as dependent variable. This section analyzes existing theories and studies about these variables to establish their interconnections, which serve as the basis for forming hypotheses, and analyzes the connection between motivational elements and population characteristics. Additionally, it discusses the relevant research and theoretical frameworks to provide a thorough understanding of the study.

2.2 Theory of Motivation

Motivation theories exist in two main groups known as content theories and process theories (Kanfer, 2008).¹⁵ For example, Maslow, Alderfer, Herzberg and McClelland developed content theories, whereas Vroom, Porter, Lawler, Adams, and Locke focused on process theories.

2.2.1 Content Theories

Content theory of motivation analyzes the intrinsic elements that push human beings to act. The most prominent theories of content motivation comprise Maslow's hierarchy of needs, Alderfer's ERG theory, Herzberg's motivator-hygiene theory as well as McClelland's three-needs theory.

2.2.1.1 Maslow's Theory

One of the most important explanations under Need Theory is Maslow's

¹⁵ Content theories examine individual motivation by studying personal goals alongside internal needs of people. In contrast, Process theories describe the psychological steps that lead people to make decisions about their actions while contrasting with Content theories which focus on internal needs and personal goals.

Theory. Abraham Maslow developed Maslow's Hierarchy of Needs as a motivational theory during 1943. According to Maslow's (1943), in his research "A Theory of Human Motivation", human beings must complete lower-level needs including food and safety before they can achieve the higher-level needs (refer Figure 3).¹⁶ Self-actualization represents the highest achievement according to Maslow, yet people must fulfill all lower-level needs before reaching this point.

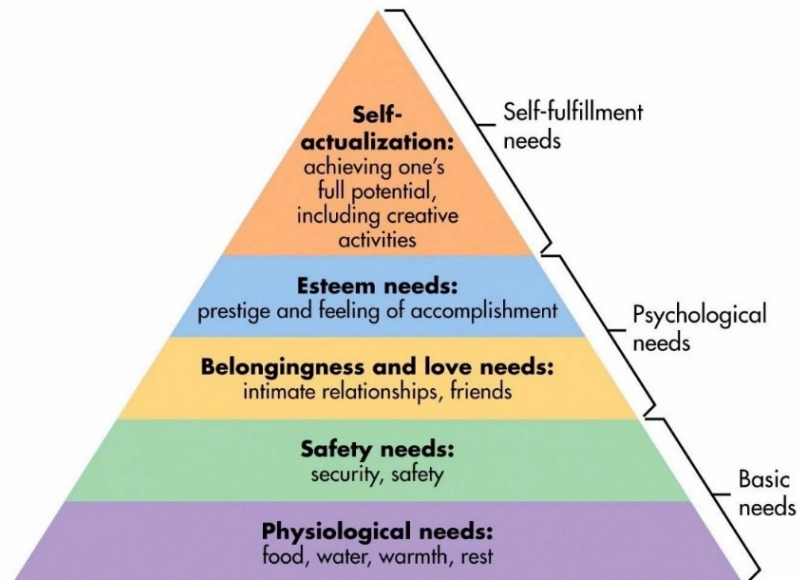
The process requires a complete understanding of human motivation. It organizes human needs into a five-level pyramid. Maslow proposed that humans ascend through several needs' levels starting from basic requirements that must be satisfied first. At the bottom are physiological needs like food and shelter. Once these are satisfied, the next level includes safety and security needs. After that, there are social needs for love, affection, and belonging. Above these are esteem needs, which involve ego and self-respect. Self-actualization represents the top level which leads individuals to complete development while achieving maximum potential. Maslow noted that self-actualization needs can never be completely satisfied (Tesone, 2005). Champagne and McAfee (as cited in Ramlall, 2004) adapted Maslow's hierarchy for employees, suggesting that needs can vary based on the worker and organization. Managers should create an environment where employees can develop to their full potential (Steers and Porter, as cited by Ramlall, 2004).

A healthy work environment may help employees achieve self-actualization (Schrage, 2000), though Maslow believed few people reach this stage. Employee motivation theories suggest that people have an intrinsic need to grow personally (Tesone, 2005). The belief exists that happier employees achieve higher productivity. The research by Saari and Judge (2004) demonstrates that happiness does not consistently produce increased productivity levels. Research conducted in Asian settings demonstrates that Maslow's theory remains applicable. The study by Idrus et al. (2022) investigated the impact of employees' motivation factors on job satisfaction within Malaysian public universities. The investigation based on Maslow's Hierarchy of Needs demonstrated that dealing with both fundamental and advanced needs lead to greater employee job satisfaction and workplace

¹⁶ People have distinct levels of needs starting from physiological (air, water, and food) through safety (personal security and health) and belongingness (relationships and social acceptance) to esteem (respect and achievement) and ending with self-actualization (fulfilling personal potential).

motivation. This underscores the practical value of attending to employees' hierarchical needs to improve public service delivery in Malaysia.

Figure 3: Maslow's Hierarchy of Needs



source: <https://www.simplypsychology.org/maslow>

2.2.1.2 David McClelland (Need for Achievement) Theory

The Need for Achievement (N-Ach) concept developed by McClelland (1961) focuses on individuals who possess a powerful drive to accomplish targets while enhancing their abilities and attaining superior benchmarks.¹⁷ People with high N-Ach are driven by their own inner motivation and by what others expect of them.¹⁸ On the other hand, those with low N-Ach might choose tasks that are either very simple to avoid failure or too difficult, so they can avoid embarrassment if they don't succeed.

¹⁷ The idea of 'Need for Achievement' was first introduced by Henry Murray, who described it as working hard and staying focused on a tough goal. McClelland (1961) made the concept more popular.

¹⁸ People with high N-Ach tend to pick tasks that are not too easy or too hard, but just right, which are challenging but possible to complete. They need independence along with challenging situations and achieve satisfaction from receiving recognition for their achievements. Supportive parents together with praise for achievements and self-belief create a powerful need for achievement.

2.2.1.3 Alderfer's ERG Theory

The ERG Theory developed by Alderfer reduces Maslow's Needs Theory into three fundamental sections: Existence, Relatedness and Growth. The research on Maslow's Hierarchy of Needs revealed overlapping categories between middle-level needs which led to this simplified model. According to Alderfer (1969), the needs do not need to be experienced in a specific sequence because any need can activate at any moment. The theory states that employees do not need to reach complete satisfaction with basic needs before seeking higher-level needs fulfillment. Unmet higher-level needs may drive employees to return to lower-level needs based on Alderfer's theory; frustration-regression principle. The three categories in Alderfer's theory consist of Existence that deals with fundamental physical requirements and Relatedness which includes social relationships at work and home and Growth which addresses individual development needs.

2.2.1.4 Two-Factor Model (Herzberg's) Theory

During the 1950s and 1960s, Fredrick Herzberg investigated employee satisfaction through research about workplace motivation driven by employee attitudes. His research led to the Motivation-Hygiene Theory, also known as the Two-Factor Theory. According to Herzberg (1959) both intrinsic motivators and extrinsic hygiene factors determine individual motivation (Ramlall, 2004).¹⁹ Motivators including achievement and recognition connect to Maslow's higher needs while improving motivation. On the other hand, hygiene factors, such as pay and working conditions, relate to Maslow's lower needs and can harm motivation if they are not satisfactory. However, hygiene factors don't directly motivate people, they only prevent dissatisfaction when they are met. Herzberg's main focus was to improve people's well-being at work, not just to boost performance. His research showed that while people work to meet hygiene needs first to avoid dissatisfaction, they also need true motivator. True motivation emerges from meeting fundamental

¹⁹ Examples of hygiene factors include company policies, relationships with supervisors, salary, job security, and work conditions. In contrast, the example of real motivational factors consists of responsibility, recognition and advancement opportunities.

requirements which include achievement along with advancement and personal growth.

Herzberg developed his Two-Factor Theory by looking at earlier research done by Mayo and Coch & French (as cited in Herzberg, 1959).²⁰ Herzberg wanted to clearly understand what workers really want from their jobs. He used different ways to find this out, such as asking workers to rank what mattered most to them, talk about what they liked or disliked in their jobs, and fill out questionnaires. After his research, Herzberg identified two main types of factors: motivators and hygiene factors.²¹ When hygiene factors are not good enough, workers feel unhappy. Workers feel less unhappy when these factors improve yet satisfaction does not necessarily result from these changes (Herzberg, 1959). To help workers become happier and more productive, organization need to address hygiene factors initially by establishing fair compensation, clear organizational rules and reasonable work relationships and supportive management that ensures workplace safety. Once these things are in place, managers can start working on motivators by making the job itself more meaningful and interesting.

According to Johnson and Gill (1993) job enrichment represents a job change design to enhance worker involvement and creativity and reward them appropriately. Job enrichment gives employees more responsibilities, encourages them to think creatively, and lets them have more control over their work (Ramlall, 2004). Herzberg explained job enrichment further with something called "vertical loading," where workers are given responsibilities usually handled by managers or supervisors. Such behavior enhances employee satisfaction and a feeling of value which provides better prospects for learning and career advancement. In contrast, additional workload responsibilities distributed between workers of similar levels under "horizontal loading" fail to deliver both satisfaction and work motivation (Ramlall, 2004). Two-Factor Theory Examples:

²⁰ Mayo discovered that workers' interactions with their supervisors proved more influential than workplace environment changes regarding their productivity. He also noticed that informal friendships and groups at work could change productivity levels too. Coch & French discovered that workers who are involved in making decisions and setting goals cope better when changes happen in the workplace (as cited in Herzberg, 1959).

²¹ Workers find satisfaction and enthusiasm in their jobs through motivators. These include feeling successful, being recognized for their work, enjoying the tasks themselves, getting promoted, and having chances to learn and grow (Ramlall, 2004). On the other hand, hygiene factors are about basic job conditions, such as company rules, salary, relationships with coworkers, how supervisors treat employees, and working conditions (Ramlall, 2004).

<u>Motivators</u>	<u>Hygiene Factors</u>
Achievement	Company Policies
Recognition	Salaries
Work itself	Co-worker relations
Advancement	Supervisory Styles
Growth	Work Condition

(cited by Ramlall, 2004)

2.2.1.5 X-Y Theory

In 1960, McGregor presented his famous ideas called Theory X and Theory Y in a book named "The Human Side of Enterprise." Even now, current managers still implement these ideas despite recent research that questions their validity. McGregor's theories remind managers about simple but important ways to manage people, which they might forget because of daily pressures at work (Galani et al., 2022). According to McGregor, managers generally see their employees in two ways: Theory X or Theory Y (McGregor, 1960). Theory X is about strict and controlling management. Managers who practice Theory X view workers as avoiding work at every opportunity when they do not enjoy their jobs. These managers think employees need constant supervision and control. The managers utilize threats and punishments as tools to compel workers to finish their tasks.

Workers under Theory X accept direct orders yet avoid taking on extra work responsibilities yet mostly prioritize job security. Theory Y incorporates trust-based involvement between employees. Managers who adopt Theory Y understand that work expresses itself naturally within people just like playing a game or performing enjoyable activities. They believe workers can motivate themselves and do tasks without much supervision. Managers using Theory Y see their employees as responsible, creative, and able to handle problems on their own. Workers under Theory Y demonstrate better performance when managers provide responsibilities together with freedom and trust. McGregor believed many workers have great abilities, but these abilities often go unused. Under Theory Y managers support their employees through active growth assistance. The Theory Y approach results in happier employees who demonstrate better motivation and increased job satisfaction than the Theory X method of strict control (Singh et al. 2019).

2.2.2 Process Theories

According to Process or cognitive theories, people understand motivation through the framework of thinking and reasoning about our actions. Unlike theories based on basic needs or drives, process theories explore how our thoughts and decisions influence motivation. Thus, such theories are useful for managers since they present usable strategies to motivate individuals. The three primary principles underpinning these theories encompass expectancy theory, which deals with expectations, goal theory, which targets goal achievement, and equity theory, which regulates feelings about fairness. These concepts examine how thinking abilities determine our actions, together with our motivation.

2.2.2.1 Expectancy Theory

The motivation theory of Expectancy Theory, which Vroom (1964) first introduced and later expanded by Porter and Lawler (1968), explains what drives people to dedicate effort in their work. People derive motivation through their belief that their work effort will result in rewards. These three elements determine this process: valence, instrumentality, and expectancy. People determine the value of expected rewards through their valence assessment. Therefore, people become more motivated when the obtainable rewards hold personal value to them. People who possess instrumentality believe their excellent work performance leads to reward acquisition, while those with expectancy believe they can accomplish necessary assignments. Thus, a proper alignment of these three factors creates stronger motivation for goal achievement.

According to Vroom's theory, there are three essential relationships that matter: (1) effort-performance indicates people's belief about reward outcomes from their work; (2) performance-reward shows how good performance links to incentives; and (3) rewards-personal goals look at whether the received prizes meet personal objectives. According to Porter and Lawler (1968), motivation results from both reward expectations and the particular nature of those rewards, which drive performance. In their model, they established two categories of rewards: intrinsic rewards, which include personal satisfaction and a sense of accomplishment, and extrinsic rewards, which include bonuses, promotions, and

pay raises. Job satisfaction emerges when people receive rewards that satisfy their personal and professional requirements, according to their model.

2.2.2.2 Goal Setting Theory

The Goal Setting Theory was initially developed by Edwin Locke during the 1960s, and then Locke and Latham (1979) refined it in 1979 to explain how specific, challenging goals enhance performance. The theory shows that accepting well-defined, challenging goals between people produces enhanced motivation, which, in turn, produces superior results. Through goal setting, employees acquire direction, which makes them understand tasks along with the required effort levels. Therefore, the goal-setting process becomes more effective when people participate because it leads to their personal commitment toward the goals. The theory specifies that clear and practical goals create stronger incentives for goal achievement. Furthermore, progress reinforcement through positive feedback maintains motivation levels while stimulating individuals to put forth more effort. Thus, goals that are both specific and attainable generate stronger motivational effects than broad objectives that lack clarity.

2.2.2.3 Equity Theory

Through Equity Theory, Adams (1963) shows us that workplace fairness determines employee motivation levels. The concept remains basic, which employees desire their job contributions to match the benefits received. Workers contribute their time alongside effort and skills together with their dedication to their job. Therefore, workers expect fair compensation from their employers, which may include monetary rewards as well as organizational benefits and career advancement opportunities. Consequently, workers who find their job demands balance with received compensation express higher satisfaction rates while keeping up their peak performance.

However, the workforce tends to develop negative issues when employees notice they provide more work than their colleagues, yet their compensation feels insufficient. As a result, unhappy workers who lose their drive tend to reduce their work effort, while some develop negative job-related attitudes toward both their

work and their employer. Thus, workplace fairness plays an essential role because of its importance for employee satisfaction. Workers require more than financial compensation since recognition and growth prospects together with respect form essential parts of workplace value. Therefore, the success of employee motivation depends on managers who maintain an equal balance between the rewards they offer, and the work employees contribute.

2.3 Why Maslow's Hierarchy of Needs and Herzberg's Two-Factor Theory Used in Current Study?

While many theories exist as explained above, Maslow's Hierarchy of Needs and Herzberg's Two-Factor Theory continue to be valuable frameworks for studying motivation, especially in the context of Pahang LG employees. These two models provide a strong foundation for this research for several reasons. First, the two theories have established reputations backed by substantial empirical support since numerous academic journals have verified their usefulness for workplace intrinsic and extrinsic need assessment. Second, Maslow's Hierarchy provides a structured sequence of needs that enables Pahang LG organizations to determine their employees' developmental stage, which ranges between basic job security to advanced professional development. Third, according to Herzberg's Two-Factor Theory, there are classification where organizations need to separate "hygiene" factors that prevent dissatisfaction from "motivators" that enhance performance through elements such as recognition and responsibility. Therefore, the government environment with strict pay systems and administrative structures finds this particular distinction highly beneficial. Finally, the theories show their adaptability to diverse local settings because recent studies demonstrate how their core principles persist across different cultural and socioeconomic environments.

Thus, this flexibility makes them ideal for studying Pahang's unique LG environment. Both of them can be categorized as Motivation Need Theories, which explain why people are motivated to work. People respond according to their needs for safety and value, which Maslow theorized as fundamental human requirements. Moreover, people experience two types of needs that range from physical requirements such as hunger to psychological needs of seeking recognition. Unfulfilled needs within individuals generate a feeling of uncomfortable tension.

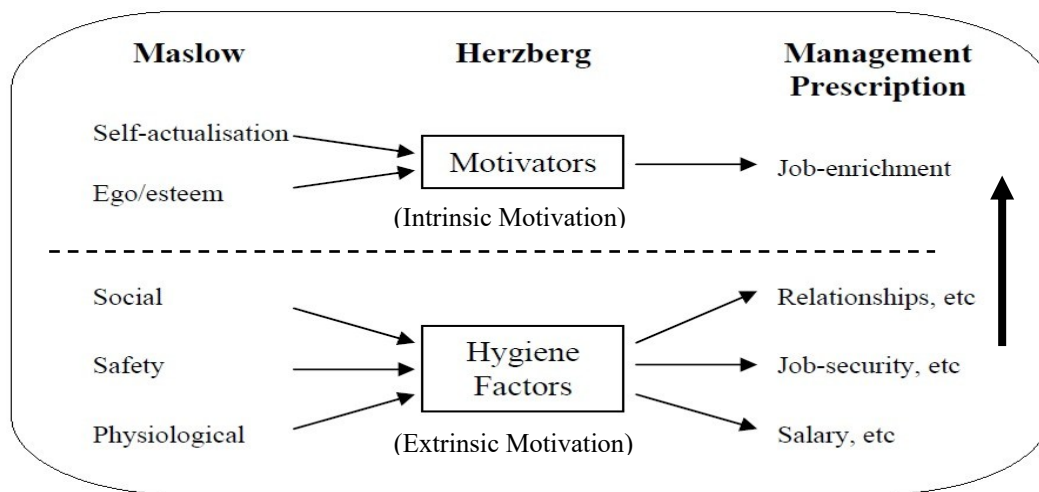
Consequently, this tension makes people take action to meet their needs and reduce stress. So, understanding these needs helps employers find ways to motivate their employees effectively. Therefore, employee motivation needs theories that are suited to explore why people choose certain jobs, stay in them, and work hard (Simons & Enz, 1995).

These theories explain that behavioral needs occur when physical or mental deficiencies cause certain actions (Ramlall, 2004). Ramlall explains that motivation involves "internal factors that energize behavior." Robbins (1993), cited in Ramlall (2004), describes it as the willingness to put in high effort towards organizational goals, driven by the fulfillment of personal needs. Thus, success in employee motivation requires employers to identify their workforce's unfulfilled needs. The tensions from unmet needs push people to perform behaviors that fulfill these needs for tension relief (Ramlall, 2004). For example, Rowley (1996) looks at factors that affect the motivation of academic staff in higher education. According to Herzberg's hygiene factors, Rowley explains how failure to meet basic needs leads employees to develop dissatisfaction. Consequently, this dissatisfaction can lead to frustration, which makes it harder for staff to do their jobs well, including poorly organized job and timetables, not properly maintaining equipment, or don't want to do different tasks at once.

2.4 The Relation Between Maslow's Theory and Herzberg's Theory

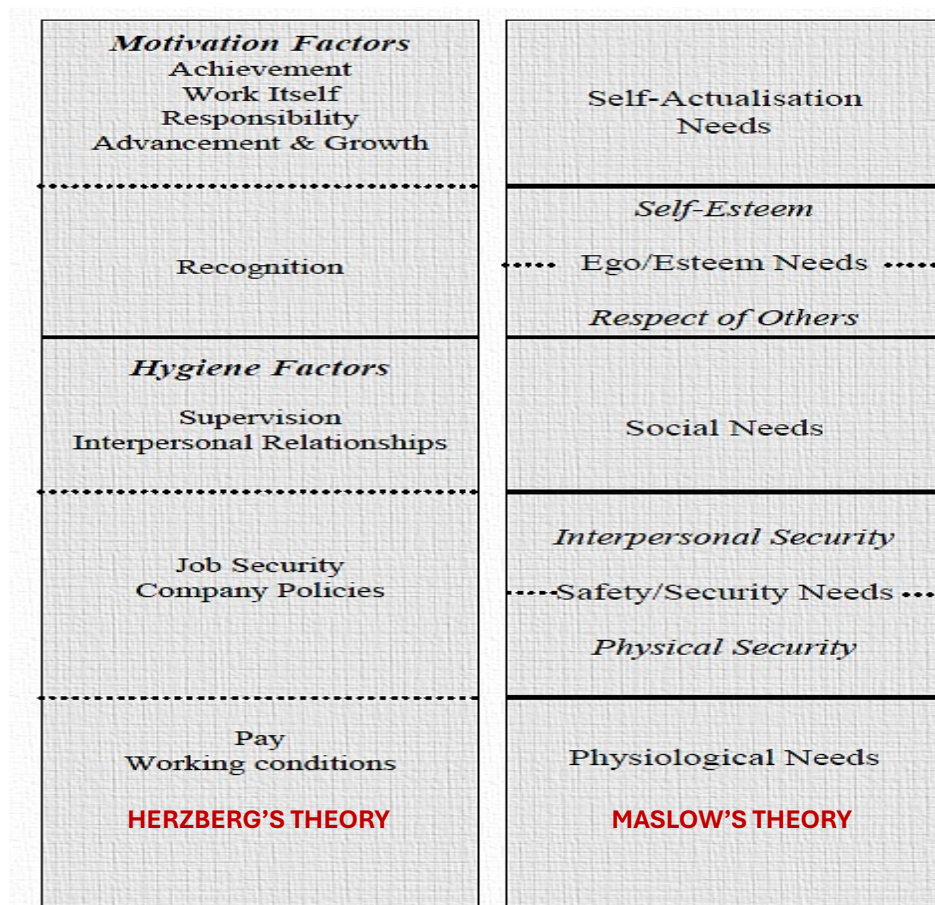
The frameworks of Maslow's Hierarchy of Needs and Herzberg's Two-Factor Theory exhibit similarities in essential concepts, but they focus on different aspects. Specifically, Herzberg's hygiene factors align with Maslow's physiological and safety needs for job satisfaction prevention, while Herzberg's motivators correspond to Maslow's self-actualization and esteem needs for intrinsic motivation (Moorhead & Griffin, 1995). Therefore, the figure (*as shown in Figure 4 & 5*) presents the relationship between these elements together with their corresponding management approaches.

Figure 4: The Correspondence between Maslow and Herzberg



(Adapted from Moorhead & Griffin [1995])

Figure 5: The Parallels Among the Need Based Perspectives on Motivation



(Adapted from Moorhead & Griffin [1995])

Rowley (1996) emphasize that HRs managers should make basic needs and hygiene factors such as fair wages along with safe work environments and clear organizational policies their initial priority. This is because basic needs with accompanying hygiene factors create stability that protects employees from feeling dissatisfied, so they remain motivated. Therefore, basic needs must be satisfied first, or any well-intentioned motivational approaches will fail because unresolved hygiene needs generate resentment, which leads employees to disengage (Herzberg, 1968). Subsequently, after establishing a foundation of employee needs satisfaction, HR managers should focus on motivators like recognition and skill development and meaningful contribution opportunities that enhance long-term engagement and match employee aspirations for growth and purpose (Amin et al., 2014).

However, both Herzberg's and Maslow's theories encounter notable criticism from experts. Herzberg's methodology faces validity issues because it excluded clerical and production workers, resulting in findings that were biased towards professional workers (Brenner, 1971; Galanakis, 2022). Moreover, critics have challenged Maslow's strict hierarchy because it ignores how cultural elements and socio-economic conditions shape what people value most. For instance, the members of collectivist societies place higher importance on feeling like they belong than achieving individual success (Goldthorpe, 1968).

According to critics, one theory cannot explain work motivation for all employees because different socioeconomic groups place different priorities on employee factors (Parker, 1972). Consequently, teamwork-focused strategies will engage certain staff members yet fail to motivate workers who prefer monetary rewards, according to Stanworth (1977). Despite these criticisms, both theories can still be relevant, particularly in the Malaysian public sector, if they are adapted to local cultural values.

Specifically, the hygiene factors outlined by Herzberg, including fair wages and transparent HR policies, minimize employee dissatisfaction in positions such as rural administration or waste management (Amin et al., 2014). In addition, the motivators of recognition and career advancement opportunities correspond well with the Malaysian cultural standards that emphasize public service through ethical leadership (Ahmad et al., 2024). For example, employees leading sustainability projects gain esteem by making a visible impact in the community (Ahmad et al.,

2019). Furthermore, Herzberg's dual-factor model demonstrates validity in collectivist cultures, particularly when team-oriented motivators replace individual recognition as the primary motivator (Taormina & Gao, 2013). In Malaysia, LGs implement both approaches to fulfill basic needs such as wages and job security while promoting innovation through decision-making participation and training initiatives (Elghadi et al., 2024). A combination of these strategies creates workforce stability while simultaneously enhancing service quality (Robbins & Judge, 2013).

Therefore, past research suggests, organization should first address hygiene factors because they function as the basis for motivating employees. HR managers must take care of basic employee needs including fair compensation and job security and safe workplace environments to allow employees to pursue higher-level incentives that include appreciation and career growth opportunities. Malaysian cultural diversity requires customized motivational strategies which incorporate local values such as community impact and teamwork to make both hygiene and motivational approaches more effective. Thus, high-performing teams along with societal accomplishment become possible through a committed workforce that this approach develops.

2.5 Extrinsic Factors (Hygiene Factors) Influencing Job Satisfaction

Despite the integration of both theories as explained above (because of the similarity in their priority order of the motivation factors), this study will adopt Herzberg's Two-Factor Theory as the basis for independent variables, as it clearly distinguishes between internal and external factors, providing a clear framework to drive this research. This section will explain the extrinsic motivation (hygiene factors) and intrinsic motivation (motivator). Hygiene factors are external to the work itself and are necessary to prevent dissatisfaction, but they do not inherently motivate employees if they are merely adequate. These factors influence the work environment and are necessary to create a neutral, satisfactory workplace. Herzberg's primary hygiene factors include:

2.5.1 Organization Policy

Clear, fair, and transparent organizational policies play a crucial role in shaping employee satisfaction and reducing workplace stress. Research consistently shows that comprehensive policies create employee security because these guidelines establish specific performance expectations along with established procedures. Employees at organizations that maintain transparent policies demonstrated both better job satisfaction and increased trust in management along with decreased ambiguity, according to Greenberg (1990). Moreover, studies by Cropanzano et al. (2001) show that fair implementation of organizational policies through equitable decision-making decreases frustration levels and creates organizational justice factors that boost employee morale.

Companies having established protocols for employee advancement along with reward systems and dispute resolution processes keep their personnel longer according to Allen and Meyer (1990). Workers in these organizations view their treatment as fair due to defined rules. Podsakoff et al. (2006) suggest that fair organizational policies generate trust in leadership which leads employees to direct their efforts toward organizational goals. In addition, clear policies about attendance and leaves foster employee performance by minimizing their workplace rule-related anxiety (Batt & Valcour, 2003).

On the other hand, when policies receive inadequate design, they generate negative satisfaction outcomes. The research conducted by Rousseau (1995) demonstrates that complicated rules alongside inconsistent enforcement create confusion among workers and subsequently triggers stress and disengagement among them. Consequently, workers in these environments frequently describe feelings of being undervalued thus increasing their potential to leave their jobs (Griffeth et al., 2000). The evidence shows that descriptive policies which are both straightforward and evenly applied are essential to support employee job satisfaction and organization stability. Therefore, companies that prioritize policy clarity and equity create environments where employees feel secure, respected, and motivated to contribute.

2.5.2 Relation with Peers

Workplace relationships between colleagues serve as fundamental factors that develop job satisfaction and total workplace health. Studies indicate that workers who establish strong supportive connections with colleagues show higher job engagement alongside better role enjoyment. Salas et al. (2005) showed that teams with trust-based and open communication networks achieve better problem-solving outcomes as well as innovative solutions through their cohesive interpersonal relationships. Cohen and Wills (1985) established that workplace support between colleagues protects employees from burnout most strongly in demanding positions. Consequently, strong peer networks create more resilient employees because workers feel protected to disclose their difficulties and request support (Kahn, 1990).

On the contrary, relationships between colleagues that are negative will result in decreased employee satisfaction and reduced productivity levels. Workplace incivility leading to dismissive behavior or uncooperative conduct has been proved to boost employee emotional exhaustion and increase their plans to leave the organization according to Duffy et al. (2002). Furthermore, workplace conflicts lead employees to withdraw from their jobs because hostility breaks trust relationships and hinders team cooperation (Salas et al., 2005). Empirical evidence consistently demonstrates that healthy peer relationships are essential for a positive work experience. Organizations that promote collaboration, trust, and mutual respect create environments where employees thrive, leading to higher job satisfaction and improved productivity.

2.5.3 Relation with Supervisor

Happy employees who perform at high levels develop such positive relationships with their supervisors. Moreover, leaders who establish high-quality leader-member exchanges (LMX) which combine trust and respect with their subordinates achieve superior job satisfaction according to Graen and Graen (1995). Employees who experience supervisory support, according to Eisenberger et al. (2002), show increased commitment toward their organization and demonstrate higher readiness for performing beyond their official roles. Trust

between employees and their supervisors leads to enhanced team productivity because these employees freely contribute their ideas and work together effectively as demonstrated in Dirks and Ferrin (2002). In addition, research by Kottke and Sharafinski (1988) confirmed that supervisors who fully engage in hearing employee issues build psychological safety that decreases work-related stress while enhancing job satisfaction. Teams under leaders who create an open approach experience decreased employee turnover because staff members believe their needs receive attention (Shaw et al., 1998).

On the other hand, a dysfunctional supervisory relationship leads to problems with satisfaction and performance levels at the same time. The study conducted by Tepper (2000) showed that supervisors who engage in abusive behavior by giving harsh criticism or neglecting their employees experience emotional exhaustion and work disengagement. Moreover, employee trust diminishes, and creativity and morale drop when leaders practice micromanagement or fail to provide feedback according to Dirks and Ferrin (2002). Overall, research findings indicate that supervisory relationships providing support lead to higher job satisfaction levels. Therefore, organizations that provide leadership training for empathy and communication skills and fairness development build motivated teams that demonstrate loyalty and achieve high performance levels.

2.5.4 Money

Organizations must provide fair compensation that matches market standards to decrease employee dissatisfaction and hold onto their personnel. Employees view compensation distribution as fair when organizations pay at industry-standard levels, according to Gerhart and Milkovich (1990). Moreover, the research by Judge et al. (2010) indicates that employees achieve higher job satisfaction through pay satisfaction when they believe compensation accurately matches their work contributions. In contrast, inadequate pay acts as a direct cause of employee motivation and loyalty reduction. The perception of unfair pay leads workers to reduce their work commitment and search for different positions when markets are competitive according to Mas (2006). Trevor (2001) discovered that employees tend to leave their jobs when wages remain below market value since

they value economic security and salary fairness. Consequently, the existence of major salary discrepancies between positions leads to productivity and employee morale decline due to worker devaluation (Pfeffer & Langton, 1993). Furthermore, employee perceptions of injustice and their trust in leadership improve when organizations communicate their pay criteria clearly (Williams et al. (2006). The understanding of reward relationships with performance creates higher employee commitment in transparent pay systems according to Gerhart & Milkovich (1990).

On the other hand, employees develop negative attitudes and stop collaborating when organizations maintain unclear and inconsistent pay systems (Judge et al., 2010). Empirical research continuously reveals that fair compensation stands as the essential factor for stopping employee dissatisfaction while ensuring continued workplace motivation. Therefore, organizations maintaining competitive salaries while ensuring fairness and transparency develop workplaces which respect their employees and motivate them to deliver higher performance.

2.5.5 Working Conditions

When employees work in physical spaces that receive proper design considerations, such as comfortable furniture elements, appropriate lighting systems, and suitable resources, they can complete their tasks without physical discomfort. The workspaces designed by Oldham and Brass (1979) created more satisfied employees who were more creative because their smart layout reduced both physical discomfort and disruptive elements. Continuous optimal noise management and temperature maintenance, according to Evans and Johnson (2000), contribute to decreased worker stress, which boosts both productivity and workplace spirit. Job conditions that are unsatisfactory produce negative results for both employee physical wellness and their capacity to work effectively. Lower control in work, combined with high job demands, creates burnout alongside cardiovascular health risks, according to Karasek (1979). Workers in these situations experience stress, which leads them to become distant from their work and miss more days (Bond et al., 2001).

Dissatisfaction with both work performance and employee satisfaction arises when manufacturing personnel encounter insufficient ergonomic conditions

that generate repetitive strain injuries (Leka & Jain, 2010). According to Baron and Kreps (1999), adequate workloads, together with sufficient tools and training, enhance employee competence, which motivates them intrinsically. Staff working in inadequately equipped settings, which contain old technology and hazardous equipment, express negative attitudes towards their organization because they perceive it lacks essential priorities (Evans & Johnson, 2000). Workers experience decreased workplace anxiety through safety protocols transparency, along with regular equipment maintenance, which builds their trust in the environment (Leka & Jain, 2010). Therefore, organizations that prioritize both physical and psychological comfort create environments where employees thrive, leading to lower turnover and long-term engagement.

2.6 Intrinsic Factors (Motivators) Influencing Job Satisfaction

Internal drivers such as personal development together with achievement goals and satisfaction constitute intrinsic motivation. Herzberg identified these motivators as factors that enhance job satisfaction and drive employees to perform above basic requirements. The intrinsic motivators include:

2.6.1 Achievement

Employees feel motivated when their meaningful work tasks lead to successful outcomes they can observe. The accomplishment of goals builds employee self-confidence, as well as competence, which serve as vital factors for sustaining enduring motivation. Research confirms that worker achievements trigger whole scale improvements in workplace motivation. Workers who experience achievement develop pride and improved self-esteem because these factors boost their dedication to their tasks. Employee appreciation through recognition creates additional motivational effects, since workers perceive value in their work contributions. People who experience achievement motivation seek to fulfill objectives and surpass expectations. Bandura and Locke (2003) discovered that workers achieving performance goals repeatedly show higher self-efficacy, because this capability leads them to put more effort into subsequent assignments. Luthans et al. (2007) studied how workers who accomplish specific performance

goals, including completed projects or learned skills, demonstrate higher job satisfaction rates, together with enhanced emotional resilience resulting from their demonstrated competence.

Multiple studies show that achievement leads to beneficial organizational results. Grant (2008) demonstrated that workers who make meaningful contributions through their work tasks demonstrate higher dedication and commitment to their jobs. When employees feel appreciated for their achievements and those of their team, they usually become more engaged, which leads to better results in retaining staff (Spreitzer et al., 1997). The absence of achievement opportunities leads to decreased motivation among workers. Employees working in repetitive roles with minimal challenges develop work-related disengagement, as reported through descriptions of "unrewarding" tasks, according to Parker and Collins (2010). The situation creates lower work performance and greater employee absenteeism. The research analysis by Cerasoli et al. (2014) demonstrates that employee recognition through praise and rewards creates stronger intrinsic motivation through satisfaction of psychological competence needs. Engineers who receive recognition for innovative solutions tend to accept challenging projects that drive organizational innovation, based on Amabile et al. (1996). Employee trust suffers decline, together with initiative suppression, when recognition fails to acknowledge their achievements, according to Dysvik and Kuvaas (2013). Therefore, organizations that establish specific goals while honoring accomplishments, and presenting demanding tasks within reach, create confident and satisfied workers who demonstrate high motivation.

2.6.2 Advancement

Organizations that give their employees opportunities for career advancement through promotions and increased responsibilities help workers understand that their work commitment can generate professional development. Organizations that maintain visible paths for career development experience increased staff retention and stronger role dedication from their workers. Therefore, the possibility of professional advancement from worker efforts creates increased employee motivation to fully dedicate themselves to their responsibilities. Research evidence presented by Ng et al. (2005) illustrates that workers who can

access career paths show increased job satisfaction and organizational loyalty, because their efforts lead to actual career development.

Organizations that apply structured promotion plans lower their employee turnover because employees feel secure about committing to long-term roles (Kraimer et al., 2010). When employees lack opportunities for professional growth, they typically choose to leave their jobs. According to Allen et al. (2003), people who receive no promotions or professional development opportunities in competitive industries tend to seek employment elsewhere. Therefore, organizations that maintain open career progression structures, together with educational development and sponsorship systems, produce content teams which simultaneously achieve better job satisfaction and extended organizational dedication.

2.6.3 Work Itself

Rank and job self-direction together with significant job meaning strongly affect how motivated workers feel and how satisfied they become at work. According to Fried and Ferris (1987), workers who get task variety along with decision autonomy in their roles achieve enhanced job satisfaction because such features enable them to maintain control and understand their work's meaning. Humphrey et al. (2007) performed research which showed problem-solving responsibilities along with skill-building functions aid in fighting job monotony because these traits elevate employee engagement and work performance levels. According to Grant (2008), people who work on tasks that benefit society demonstrate increased effort and persistence even during difficult circumstances. The study by Amabile et al. (1996) confirms that creative work tasks motivate employees intrinsically because they derive satisfaction from completing tasks without external incentives.

Engineers who receive freedom to test solutions demonstrate higher job satisfaction and exhibit less intention to leave their position (Oldham & Cummings, 1996). Workers feel less satisfied when they perform tasks that are both repetitive and unstimulating. Repetitive, low-autonomy tasks cause employees to disengage and experience burnout, because they feel their abilities remain unused, which in turn creates both increased absenteeism and productivity losses (Humphrey et al.,

2007). Organizations which create roles with autonomous features and diverse responsibilities together with creative opportunities maintain both productive teams and highly dedicated workers.

2.6.4 Recognition

Employee acknowledgment through verbal praise, awards, and formal feedback results in an increase of employee organizational commitment along with feelings of value according to research studies. According to Eisenberger et al. (1986), employees who perceived recognition in their work exhibited higher job productivity together with stronger emotional commitment to their tasks. Saks (2006) documented that recognition leads to higher job satisfaction because it helps workers feel accomplished while eliminating their experience of being undervalued. Albrecht et al. (2015) established that constant employee acknowledgment leads workers to maintain better emotional health while reducing their stress levels.

Bakker and Demerouti (2007) established recognition as an essential resource which, in turn, enables workers to handle workload requirements and maintain their dedication throughout the period. Consequently, teams with established recognition programs demonstrate enhanced collaboration together with better innovation levels and improved employee retention according to Eisenberger et al. (1990). Organizations which prioritize acknowledgment achieve both enhanced performance results and build employee environments in which people experience respectful treatment leading to high motivation levels.

2.6.5 Growth

According to research, individuals who obtain training benefits along with mentorship and career advancement programs create job satisfaction before aligning their work with personal and professional targets to boost engagement. Noe (1986) discovered that employees who take part in formal training programs experience enhanced job satisfaction together with increased workplace purpose because such initiatives show organizational dedication to employee growth. Employee motivation increases when they can develop their skills because such

opportunities show them their current role leads to future career advancement, according to Colquitt et al. (2000).

According to Maurer and Lippstreu (2008), continuous learner workers demonstrate better adaptability together with heightened problem-solving skills which, in turn, directly improve operational effectiveness. Organizations which, therefore, prioritize mentorship-based learning combined with cross-functional workshops create increased employee retention and enhanced innovation because their workers feel enabled to handle new tasks according to Tannenbaum (1997). Overall, the evidence indicates that offering promotional prospects to employee's functions as an essential foundation for sustaining their workplace commitment and satisfaction levels. It will boost individual success together with organizational achievement.

2.7 Chapter Summary

The chapter undertakes an extensive review of the theories of motivation and then categorizes them in terms of intrinsic and extrinsic factors influencing job satisfaction. Here, the focus is on analyses of central content theories such as Maslow's Hierarchy of Needs and Herzberg's Two Factor Theory which serves to explain what motivates individuals and job satisfaction.

Following a review of the material on work motivation and job satisfaction provided in Chapter 2, three main research gaps were identified. Firstly, there has been a tendency in prior work of motivation research to ignore the use of both quantitative and qualitative measures, which could not provide a deeper insight to motivation in different settings.²² Secondly, most motivational research tends to concentrate on individual aspects, without considering the diversity of the ways in which these aspects are manifested in different groups, especially in public administration.²³ Lastly, there are lack of research on motivation of the LG employees in Malaysia, which means that more research is needed in this area.

²² Most of the past studies on this topic mainly used quantitative methods, such as surveys and statistical analysis, to test the relationship between motivation and job satisfaction. While this approach is useful to measure patterns and correlations, it often lacks the ability to explain why these patterns exist.

²³ Even though past studies research about motivation, it often treats all employees equal. It does not look at how motivation may work differently for diverse types of groups especially in government sector.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the methods, approaches, and processes used by the researcher to complete the study will be explained in detail. This chapter will explain how the process of collecting data from respondents was carried out and how the data was analyzed to achieve the study's objectives. The discussion will cover the research design, study population, sample size determination, sampling techniques, research instruments, validity and reliability of the instruments, as well as data collection and analysis methods. The objective is to provide a detailed description of research methods used to fulfil the study requirements.

3.2 Research Design

An explanatory sequential mixed-methods design is used in this study, combining quantitative data and qualitative information to provide a thorough analysis. In the first stage, quantitative approaches are used, including the use of surveys and the use of statistical techniques, such as regression analysis, to explore the relationship between motivation and job satisfaction in LGs. The second stage uses qualitative research methods, namely in-depth, semi-structured interviews, to explore reasons for which the responses in the survey took place and to reveal further knowledge about factors impacting workplace motivation and job satisfaction. The combination of numerical analysis and in-depth interviews provides the valuable perspective that sheds light on the way workplace motivation and satisfaction are influenced by a wide range of factors. The steps of this research design (*as shown in Figure 6*).

Figure 6: The Steps of This Research Design



Source: Image by author

3.3 Population and Sampling

(i) Quantitative Phase

For this study, the population²⁴ consists of public servants working in LGs in Pahang State. Specifically, eleven (11) LGs in Pahang were included in the study. The reasons for selecting Pahang State are explained in Chapter 1, Section 1.8: Scope of The Study. As of June 30, 2024, data from the Pahang State

²⁴ A population is defined as the entire group, event, or object of interest in a study, while a sample is a smaller subset of that population (Ary et al., 2002). According to Sekaran & Bougie (2016), the population refers to all individuals or events that the researcher aims to study. Fraenkel et al. (2019) explain that populations tend to be widespread, and diverse in nature across multiple geographic regions. Consequently, gaining data from an entire population normally requires considerable time and financial resources.

Secretary's Office indicates that there are 2,611 public servants, including both permanent and contract employees, working across these eleven LGs. Therefore, this total represents the full population for this research. The population distribution among the eleven LGs can be found in Table 1.

Table 1: Population Breakdown of Public Servants in Pahang LG

No.	LG	Number of Staff
1	City Council A	992
2	Municipal Council B	246
3	Municipal Council C	277
4	Municipal Council D	145
5	District Council E	110
6	District Council F	207
7	District Council G	113
8	District Council H	111
9	District Council I	143
10	District Council J	124
11	District Council K	143
Total		2,611

Once the total population was identified, the sample size was calculated using two methods for comparison: the Yamane Method and the Krejcie & Morgan Method. Since sampling is crucial for estimating population values by studying a representative portion of it, the usage of samples over the entire populations saves time and effort and also reduces financial costs because sample data shows less variability.

a) Yamane Method

The Yamane Method introduced in 1967 provides researchers with a basic approach to determine sample size when they know their population dimensions (Levy & Lemeshow, 2013). The formula is as follows:

$$n = N / (1 + Ne^2)$$

where:

N = total known population

e = margin of error

For this study, the total population (N) is 2,611, and the margin of error (e) is 0.05 (indicating a 95% confidence interval and a 5% margin of error, as suggested by Westland, 2010). Thus, the Yamane method indicates that a minimum sample size of 346 respondents is needed for this study.²⁵

b) Krejcie & Morgan Method

The second method for determining sample size is the Krejcie & Morgan Method²⁶, introduced in 1970. This method is straightforward but does not consider statistical power or effect size (Collins, 2016). In this study, the sample size was determined using the Krejcie & Morgan Table. Since the exact population size of 2,611 is not listed in the table, the closest population size of 2,600 was used as a reference.

Based on the two methods explained above, the required sample sizes are nearly identical: 346 from the Yamane Method and 335 from the Krejcie & Morgan Method (*as shown in Table 2*)²⁷. The researcher decided to use a sample size of 346, calculated using the Yamane Method, as it is considered ideal for representing the population size across the eleven (11) LGs involved in the study. The Yamane Method was prioritized because the actual population size was successfully determined, making this method more applicable. Additionally, it offers the highest sample size among the two methods discussed. This ensures that if the target sample size is not fully achieved, the lower sample size (as determined by Krejcie & Morgan) can still be met, maintaining a 95% confidence interval and a 0.05 margin of error. This approach provides greater flexibility and reliability for the study.

²⁵ The calculation for n as follow: Substituting the value of N and e into the formula:

$$n = 2,611 / (1 + [2,611 \times 0.05^2])$$
$$n = 346$$

²⁶ This method involves using the Krejcie & Morgan Sample Size Determination Table, which provides pre-calculated sample sizes based on the known population size.

²⁷ According to the Table 2, for a population of 2,600, the recommended sample size is 335 respondents.

Table 2: Sample Size Determination Using Krejcie & Morgan Table

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

Simple Random Sampling (SRS) technique was used for sampling.²⁸ Therefore, to implement SRS, data was collected from 11 LGs in Pahang, including 4 from urban LGs (LGs) and 7 from rural LGs. Each HR Division of these LGs randomly selected respondents to ensure that all public servants had an equal chance of being chosen. According to Alvi (2016), this SRS technique ensures that every member of the population has an equal probability of being selected. Moreover, the technique decreases sampling errors while maintaining accuracy of the population representation.

By using this method, the study guarantees a fair and reliable selection process, thereby enhancing the validity and accuracy of its results. The sample

²⁸ In this study, the SRS was used to select the sample, considering the uniformity of the target population. This is because this method was chosen as the study was open to all staff in LGs, regardless of their employment scheme or grade. Since the recruitment procedures and employment methods for all staff across the LGs are standardized by both the CG and SGs, the population is considered homogeneous in terms of service structure.

included all public servants working in the selected LGs across all job grades, from the lowest grade (Grade 11) to the highest. For district councils (*Majlis Daerah*) and municipal councils (*Majlis Perbandaran*), the sample included staff up to the Management and Professional Group, Grade 54. For city councils (*Majlis Bandaraya*), the sample included positions in the Public Sector Premier Posts (JUSA) category. Thus, the approach guaranteed complete representation involvement from every hierarchical level in the LGs.

(ii) Qualitative Phase

The qualitative section of this study implements in-depth interviews using purposive sampling²⁹ to extract fundamental explanations that support the quantitative phase findings (Creswell, 2006). Consequently, supervisory and management-level LG employees in Pahang who maintain at least 10 years of service form the target population for this phase of research. The chosen participants bring extensive organizational experience together with personal understanding of how work environments operate and what obstacles and policies affect employee motivation. Therefore, a total of 10 participants were chosen based on their key positions within LGs for this study, as follow:

- a. 2 representatives from the LG Department (in SG): Senior administrators who oversee policy implementation across municipalities. (*codename: Int-B & Int-G*).
- b. 2 Mayors: Leaders responsible for urban and rural governance, as well as service delivery. (*Int-D & Int-F*).
- c. 2 Heads of HRs Departments: Experts in employee welfare, training, and retention strategies. (*Int-A & Int-I*).
- d. 4 Heads of Departments (HODs): Managers from departments such as waste management, licensing, or community development, who have direct interaction with frontline staff. (*Int-C, Int-E, Int-H & Int-J*).

²⁹ Purposive sampling in qualitative phase targets individuals who have both relevant experience and specific expertise, according to Creswell (2006). Through this method, researchers can select study participants who possess deep knowledge regarding research questions.

The diverse selection method allows researchers to gather insights from multiple perspectives, which include policymakers and operational leaders together with HR specialists. Participants were identified through collaboration with the Pahang State Secretary's Office and LG HR departments, thereby leveraging networks established in the quantitative phase. Purposive sampling focuses on recruiting participants who possess extensive knowledge, which in turn enables them to explain the reasons behind quantitative statistical findings (Patton, 2002). Criteria for the interview participation:

- e. Minimum 10 years of service: This ensures that participants have witnessed long-term organizational changes and have a deep understanding of systemic issues within the LGs.
- f. Supervisory roles: This guarantees that participants are familiar with team management, policy execution, and employee challenges.
- g. Geographical diversity: Participants are chosen from both urban and rural LGs to account for regional variations in resources, priorities, and challenges.

All participants receive confidentiality guarantees throughout the study, and the researchers use anonymous quotes to maintain ethical standards. Furthermore, the researcher obtains consent from participants before starting interview sessions. Through this method participants establish trust which enables meaningful discussions about essential matters like work dissatisfaction and leadership deficits (Saunders et al., 2015). This participant number of ten follows standards for qualitative research by focusing on in-depth analysis rather than broad statistical representation (Guest et al., 2006). Moreover, the research method identifies repeated patterns without unnecessary repetition to reach thematic saturation which leads to comprehensive understanding of employee motivation within a specific context.

3.3.1 Pre-Data Collection Procedure

Before beginning this study, a formal request for permission to conduct the research was submitted to the LG Division of the Pahang State Secretary's Office.

The application followed WMA (2008), Helsinki Declaration³⁰ ethical principles to safeguard both rights and well-being of human research participants.

The review process confirmed that research instruments satisfied all ethical requirements and methodological criteria before obtaining formal approval. The approval from the Pahang SG was obtained on August 2, 2024, to continue under established guidelines. Additionally, the procedure for the interview process was also approved by the Pahang SG on March 4, 2025.

3.4 Research Instrument

(i) Quantitative Phase

To facilitate this study, a questionnaire was prepared and distributed to respondents. The questionnaire consisted of closed-ended questions, where responses were limited to the options provided within the questionnaire. A questionnaire stands as the essential research instrument³¹ for gathering data during descriptive survey-based research (Lodico et al., 2006). Researchers modified the questionnaire by adopting established instruments from related studies to establish validity and reliability in the research.³² The questionnaire is divided into four (4) sections: Section A: Demographic information, Section B: Intrinsic Factors, Section C: Extrinsic Factors and Section D: Job Satisfaction. A detailed structure of the questionnaire is provided in Table 3.

Table 3: Number of Questions in Each Section of the Questionnaire

Section	Items	Number of Items	Source of Instrument
A	Demographics	9	Developed by the researcher

³⁰ This declaration focuses on safeguarding the rights of research participants, emphasizing informed consent, minimization of risk, and the primacy of the individual's well-being over scientific interests.

³¹ The research instrument refers to the tools and methods used for data collection. According to Fraenkel et al. (2019), the entire process of preparing to gather data is referred to as instrumentation. It is the researcher's responsibility to develop the research instrument and decide how data should be collected for the study (Kumar, 2011).

³² According to Gay et al. (2012), questionnaires should remain engaging with a concise design that promotes easy completion.

Section	Items	Number of Items	Source of Instrument
B	Intrinsic Factors	14	Adapted from Maidani (1991) and Tan et.al. (2011) using the Frederick Herzberg Model and The Multidimensional Work Motivation Scale from Gagné et al. (2015)
C	Extrinsic Factors	13	
D	Job Satisfaction	4	

Section A: Demographics

Section A of the questionnaire was designed to gather demographic information about the respondents. This section allows the researcher to collect background data, which is essential for classifying respondents during data analysis. The questions of this section gathered demographic information regarding gender, age group, job grade, and service duration. Consequently, the demographic data enables researchers to analyse responses while better comprehending the characteristics of participants in the research.

Section B: Intrinsic Factors

Section B focuses on the respondents' intrinsic factors within their organization. For this independent variable, the instrument used includes items adapted from widely recognized scales developed by Maidani (1991) and Tan et al. (2011), using the Frederick Herzberg Model and the Multidimensional Work Motivation Scale from Gagné et al. (2015). Specifically, five key factors related to intrinsic factors in the workplace, achievement, advancement, work itself, recognition, and growth were included in the analysis. The scale items were modified to suit the current context, considering societal changes over time. Tan et al. (2011) reported Cronbach's alpha reliability of 0.71 and 0.76 for these five factors, thereby demonstrating high reliability. The section contains survey questions rated on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5) to measure participant agreement levels.

Section C: Extrinsic Factors

Section C focuses on Extrinsic Factors. The instrument used to measure this variable is also adapted from Maidani (1991) and Tan et.al. (2011) using the Frederick Herzberg Model and The Multidimensional Work Motivation Scale from Gagné et.al (2015). This section contains 13 items designed to measure respondents' extrinsic motivational factors (Organization Policy, Relationship with Peers, Relationship with Supervisor, Money, Working Conditions) and required to evaluate all items in this section using a 5-point Likert scale, ranging from (1) Strongly Disagree to (5) Strongly Agree. Tan et al. (2011) also reported Cronbach's alpha reliability of 0.72 and 0.84 for these five factors, demonstrating high reliability, confirming its effectiveness as a reliable instrument for measuring work motivation.

Section D: Job Satisfaction

Section D focuses on the respondents' overall employee Job Satisfaction. The questions in this section were adapted from The Multidimensional Work Motivation Scale from Gagné et.al (2015). This section includes 4 items covering respondents' overall employee Job Satisfaction. All 4 items were evaluated using a 5-point Likert scale with "Strongly Disagree" at point 1 and "Strongly Agree" at point 5.

Instrument Validity and Reliability

For validity, the content validity method was used, as the study employed a questionnaire. According to Yusoff (2019), content validity ensures that the items in the measurement tool adequately represent the domain being assessed. Meanwhile, the instrument's reliability assessment utilized previous study findings to determine its consistency level. Fraenkel et al. (2019) describe reliability as the consistency of scores or responses obtained by respondents using the instrument.

Additionally, a pilot study was performed to verify the instrument's reliability, in addition to the existing research. The sources for questions in Section B, Section C and Section D were originally in English and were translated into Malay. This translation process was reviewed by a lecturer from the Academy of Language

Studies, University of Technology MARA, Malaysia to ensure the quality of the translated items and that their meaning remained consistent with the original version.

(ii) Qualitative Phase

This research conducted semi-structured interviews as part of its approach to comprehend LG staff motivation and job satisfaction patterns in Pahang. The interviews revealed authentic stories and everyday experiences, thereby expanding our knowledge about the survey data collected previously. The interviews differed from the quantitative questionnaire by allowing free responses while being flexible to let participants freely discuss their work life experiences. The questions were shaped by the main themes that had already surfaced from the survey results, helping to keep everything tied back to the study's main ideas and theoretical model (Gagné et al., 2015). The interview guide was split into two sections, matching the structure of the earlier questionnaire for consistency. As a result, the participants provided their genuine insights from direct experiences through interview sessions, which enriched research outcomes that numerical statistics did not provide.

The researcher obtained consent from participants to record their responses, which were later transcribed verbatim for evaluation purposes. Additionally, member checking was also incorporated to improve the accuracy of the data. Participants reviewed interview summaries to verify their responses and validate the accuracy of collected information, which reduced potential misinterpretation (Creswell, 2006). The interview guide was initially drafted in English, then translated into Malay to accommodate the preferences of the participants. A language expert at the Academy of Language Studies, University of Technology MARA reviewed the translation to validate its conceptual accuracy and suitability within Malaysian culture. Each participant received assurances about their confidentiality by using pseudonyms such as "Int-A" to maintain their anonymity. Furthermore, participants received the right to decline questions or leave the study anytime without repercussions, to maintain open dialogue, especially regarding sensitive matters such as interdepartmental conflicts or resource constraints.

3.5 Pilot Study for Quantitative Phase

The survey instrument received a reliability check through a pilot study performed before the main research. According to Ary et al. (2010), a pilot study is a trial run carried out with a small number of subjects to evaluate the suitability of the procedures and data collection tools. This, in turn, helps researchers assess whether the main study is feasible and provides an opportunity to fine-tune the instrument. Reliability can be assessed when repeated measurements of the items yield consistent results. The reliability of survey items gets evaluated through Cronbach's Alpha, which measures the connection between survey items. Ary et al. (2010) suggests that Cronbach's Alpha value of 0.6 or higher is acceptable, especially in preliminary investigations. Accordingly, in this study, Cronbach's Alpha values for each variable were calculated using the reliability analysis function in SPSS.

Pilot Study Procedure

The pilot study involved 32 respondents who were selected from the staff working at the Kuantan City Council, a LG within Pahang. This council was chosen because it has a large staff pool and is known for having an efficient HRs Department. A large staff pool prevented participant overlap, thus reducing the risk of personnel involvement in both the pilot and main study. This pilot study was conducted on August 5-11, 2024. According to Johanson & Brooks (2010), a sample size of 10-30 respondents is recommended for a pilot study.

Reliability Results

To assess the reliability of the instrument, the internal consistency method was used, checked using the result of the pilot study. This method calculates Cronbach's Alpha, a widely accepted approach for determining the validity of research instruments (Ary et al., 2002). Cronbach's Alpha coefficient was calculated by examining the correlation between each item's score and the total score of all items, also referred to as the test index score. A Cronbach's Alpha value between 0.6 to 0.8 is generally considered acceptable, while values above 0.8 are

regarded as ideal (Nunnally, 1978). According to Kerlinger (1973), a study with high validity demonstrates stable characteristics, consistency, predictability, and accuracy. As shown in Table 4, all the Cronbach's Alpha values obtained exceeded 0.6, confirming that the questionnaire is reliable and suitable for use in the main study.

Table 4: Reliability Test for Research Instrumentation (n = 32)

No.	Variable	Number of Items	Cronbach's Alpha
1	Achievement	3	0.745
2	Advancement	2	0.666
3	Work Itself	3	0.825
4	Recognition	3	0.859
5	Growth	3	0.930
6	Organization Policy	3	0.753
7	Relationship with peers	3	0.915
8	Relationship with supervisor	3	0.901
9	Money	2	0.695
10	Working Condition	2	0.974
11	Job Satisfaction	4	0.945

3.6 Data Collection Process

i. Quantitative Phase

An efficient and precise data collection process was executed through structured methods during the quantitative phase. First, employee data from the Pahang State Secretary's Office was obtained, and the required sample size was determined. The HR departments of the selected LGs were then contacted, provided with a Google Form survey link, and tasked with distributing it to eligible employees. The data collection for this survey procedure was conducted from August 12, 2024, until September 11, 2024. Respondents received information about the study aims alongside confidentiality guarantees and voluntary participation requirements before consenting to the study. The researcher monitored response rates, and if participation was insufficient, follow-ups were conducted through HR departments to encourage more responses. The research

continued data collection until 505 participants completed their surveys, thus achieving the necessary sample size (346 participants). Finally, once data collection was complete, responses were analyzed using IBM SPSS Version 27 to derive meaningful insights into the relationship between work motivation and job satisfaction among public servants in Pahang's LGs.

ii. Qualitative Phase

The qualitative segment of this study investigated profound elements regarding employee motivation and job satisfaction throughout LG agencies across Pahang. The qualitative research phase selected experienced supervisory staff such as Mayors, HR Heads and Department Directors who had at least ten years of service experience. The Pahang State Secretary's Office together with HR departments handled the participant selection through their contact information distribution after receiving consent from eligible individuals. Each participant received a one-on-one contact to understand the research objectives and data confidentiality practices and the complete details on interview logistics. Every participant reviewed a Malay-translated consent form which secured their anonymity through pseudonyms such as "Int-A" and ensured their ability to terminate their participation at any point.

Therefore, the study obtained electronic consent while the interviews took place using virtual platforms between Zoom and Google Meet to serve participants from multiple districts. The interview guide was validated by a language expert from University of Technology MARA before it was distributed in advance to participants so they could become familiar with the discussion topics. The researchers received consent to record interviews before starting the discussions while having an additional observer note participants' non-verbal expressions to strengthen the accuracy of transcription. Open-ended questions explored issues such as recognition programs and challenges in rural service delivery, with follow-up prompts deepening the discussion. Furthermore, the study used open-ended questions to develop discussions about recognition programs and rural service delivery challenges through additional follow-up questions. This interview session was conducted from February 25, 2025, until March 31, 2025.

The research protocol included ethical prioritization of sensitive information such as resource constraints and interdepartmental tensions by informing participants about their option to stop or skip any questions. Thus, the validity of the study increased through member checking which provided participants with the opportunity to verify and accept the summary of their interview responses (Birt et al., 2016). Transcripts of interview recordings received immediate transcription and manual correction procedures to achieve accuracy. The researcher performed manual thematic analysis by applying key constructs to transcripts while identifying patterns using the motivational models of Herzberg and Maslow. Therefore, preliminary findings were summarized into descriptive and researchers included original participant quotes which added specific details about quantitative data patterns. The researcher maintained sole encrypted access to data storage that followed Malaysia's Personal Data Protection Act.

3.7 Data Analysis

i. Quantitative phase

The data collected through the questionnaires was analyzed using the Statistical Package for the Social Sciences (SPSS) Version 27 due to its precision in statistical calculations and flexibility in handling various data transformations and interpretations. Therefore, this study employed several statistical techniques, including Frequency, Percentage, Mean, Pearson Correlation, Multiple Regression Analysis, and T-test Analysis, to achieve its objectives and test the proposed hypotheses. A coding process took place before entering questionnaire data into SPSS to create systematic categories that maintained analysis consistency and accuracy. Furthermore, employee motivation data underwent processing through structured presentations such as tables and charts to enhance result interpretation. The data processing capabilities of SPSS enabled researchers to convert raw information into significant findings which, in turn, improved their comprehension of work motivation and job satisfaction relationships. Thus, the defined methodology provided results that were simultaneously valid and reliable while meeting all research targets. This research employed the statistics listed in the Table 5:

Table 5: Analysis Methods

No.	Objective	Statistical Analysis
1	<u>As a Pre-Test:</u> To determine the validity statistic of the study instrument.	Reliability Test (Cronbach Alpha)
2	<u>As a Pre-Test:</u> To determine the relationship between intrinsic and extrinsic factors with job satisfaction.	Pearson Correlation
3	<u>Objective 1:</u> To identify the significant factors of intrinsic and extrinsic in relation to LG employee job satisfaction.	Multiple Linear Regression
4	<u>Objective 2:</u> To investigate and identify if intrinsic and extrinsic motivation factors differ or agree as differentiated by demographic differences.	T-test Analysis

ii. Qualitative phase

Thematic analysis served to understand interview data through the framework developed by Braun and Clarke (2006). This method allowed for a detailed exploration of recurring ideas and patterns in what participants were shared, especially on what motivates them at work. It was chosen not just for its structure only, but for its flexibility, which therefore made it easier to uncover subtle insights that numbers alone might miss. The first step involved reading through all the transcripts several times. Thus, such immersion allowed the researcher to understand the authentic emotional registers along with linguistic expressions and intimate stories conveyed by research participants. From there, initial codes were developed manually to organize qualitative data more efficiently. Researchers used initial codes to identify participant statements before reorganizing them into more general themes which represented collective participant opinions. During the coding process, new relationships started to form between various themes.

To clarify these relationships further, the analysis uses inductive approach, especially the process of coding to look at how things like gender might influence motivation. For instance, some differences were noted between what men and women found meaningful in their work. The analysis employed threading technique

to analyzed specific themes through multiple research groups to determine their consistency across diverse environments. Therefore, the approach introduced additional depth to detection efforts that demonstrated how work environments influence worker experiences. The earlier quantitative findings also played a useful role here, which they served as a loose guide when building initial codes, allowing certain statistical trends to be explored further in the interviews. Nonetheless, the process still left room for unexpected discoveries, which often brought the most valuable insights. In the final stage, all the themes were brought together and shaped into clear narratives. Furthermore, the analysis incorporated direct participant quotes that brought participants' authentic perspectives to support the research findings while enhancing readers' understanding of the discussed matters.

3.8 Chapter Summary

This chapter describes the methodology used in determining variables that influence work motivation and job satisfaction among LG employees using surveys and interviews. The survey gathered measurable data, analyzed with SPSS through tests like mean scores, correlations, and regressions. Richer understanding resulted from experiences accumulated after conversing with experienced people in top positions such as department heads and HR leaders. Thematic analysis was used to analyse interview data, following Braun and Clarke's approach, with an inductive method to understand motivational differences based on demographics. The study combined quantitative data with real experiences to explain both what is happening and why.

CHAPTER 4

RESULTS & FINDINGS

4.1 Introduction

This chapter presented findings in two parts, that consist of quantitative analysis results followed by qualitative analysis results. The research questions 1 and 2 are analyzed through SPSS 27 software for quantitative research. This section starts with a description of the sample data before performing Pearson correlation to investigate variable relationships. Research Question 1 uses Multiple Linear Regression Analysis to identify key significant motivation factors influencing job satisfaction, while Research Question 2 uses an Independent Samples T-test to analyse differences of motivation factors across five demographics: location (urban vs. rural), gender, marital status, seniority, and job position. For the qualitative analysis, interview data is used to answer Research Question 3. Finally, both quantitative and qualitative data in this chapter provides a comprehensive information for discussion in the next chapter.

4.2 Descriptive Statistics

This section will focus on the descriptive statistics to illustrate the characteristics of the sample studied and present the frequencies for all of the questions that are contained in the questionnaire.

Profile of Respondents

The respondents' characteristics were in the first segment of the questionnaire. Descriptive statistics of the respondents are presented in Table 6. The respondents for this study consist of public servants from various job schemes and grades who are currently working in 11 LGs within the Pahang SG. A total of 505 respondents participated, which exceeds the minimum sample size of 385 respondents required based on Yamane's sampling method. Based on the table, out of the total 505 respondents (n=505), 68.7% (347) were male, while 31.3% (158) were female. This distribution aligns with the percentage of public servants

under the Pahang State Secretary's Administration (SUK) in 2024, where 59.0% were male, and 41.0% were female. Based on the respondents' age groups, the study data shows that the majority are aged 36-40 years, accounting for 18.2% (92 respondents). The second largest group is aged 41-45 years at 16.8% (85 respondents), followed by those aged 31-35 at 16.2% (82 respondents) and those aged 26-30 at 13.7% (69 respondents). This shows that a large portion of the respondents (48.1%) were aged 26-40, displaying that about half of the sample was at a productive age. The study also found that respondents in grades 1-19 made up the largest group at 49.3% (249 respondents). The second largest group was from grades 19-28 at 33.3% (168 respondents), followed by grades 29-40 at 13.5% (68 respondents). Respondents from the Management and Professional (P&P) category, including grades 41-44, grades 47/48-52, and grade 54 (Public Service Premier Posts - JUSA), formed the smallest group, at 2.8% (14 respondents), 0.8% (4 respondents), and 0.4% (2 respondents), respectively.

According to staffing data obtained from the HR Management Division, Pahang State Secretary's Office, as of 2024, public servants in grades 1-19 represented the highest percentage at 46.22%. This aligns with the study findings. This group primarily consists of operational staff, who are essential for LGs to handle tasks such as clerical work, administration, enforcement, licensing, finance, and other fieldwork. Looking at the length of service, the highest percentage of respondents had served for 1-5 years, making up 18% (91 respondents). This was followed by those with 11-15 years of service at 16.4% (83 respondents), and those who had served 21-25 years at 15.4% (78 respondents). Respondents with the lowest percentage were those with more than 31 years of service, at 6.9% (35 respondents). The highest frequencies for educational level were those received SPM at (47.5%), followed by Diploma level at (25.5%) and PMR Level at (16.2%).

Table 6: Socio-demographic Profile of Respondents (n=505)

Characteristics	Frequency	Percentage (%)
Gender		
Male	347	68.7
Female	158	31.3
Age Range		
18 - 25	21	4.2
26 - 30	69	13.7
31 - 35	82	16.2

Characteristics	Frequency	Percentage (%)
36 - 40	92	18.2
41 - 45	85	16.8
46 - 50	61	12.1
50 - 55	56	11.1
56 - 60	39	7.7
Marital Status		
Married	404	80.0
Single	101	20.0
Education		
PMR	82	16.2
SPM	240	47.5
Diploma	129	25.5
Degree	46	9.1
Master	6	1.2
PhD	2	0.4
Tenure of Services in LG		
Less than 1 year	50	9.9
1-5 years	91	18.0
6-10 years	47	9.3
11-15 years	83	16.4
16-20 years	56	11.1
21-25 years	78	15.4
26-30 years	65	12.9
More than 31 years	35	6.9
Current Grade		
1-19	249	49.3
19-28	168	33.3
29-40	68	13.5
41-44	14	2.8
48-52	4	0.8
54-JUSA	2	0.4

4.3 Pre-Test Analysis

Before conducting the main analysis, it is necessary to perform a pre-test correlation analysis before proceeding with the main research to determine relationships between study variables. Specifically, the analysis step reveals existing patterns between variables and job satisfaction and verifies the data conditions needed for additional statistical testing including variable independence and linearity verification. Moreover, the detection of unexpected relationships and influences that could affect the main analysis becomes possible through this method. The pre-test investigation aimed to establish preliminary work motivation and job satisfaction relationships for subsequent variable investigation.

The purpose of this phase did not include causality determination because it focused on selecting topics for further research through advanced investigative statistical methods like regression analysis and longitudinal studies. Thus, strong correlations from this analysis indicate that factors with high correlation coefficients need further research in subsequent study phases. The Pearson Product-Moment Correlation (PMC) analysis evaluated how variables related to each other by determining their direction and strength. Furthermore, the strength of these relationships was interpreted based on Guilford's Rule of Thumb (1956), with the values and interpretations of the relationship strength detailed in Table 7.

Table 7: Interpretations of The Relationship Strength

Value	Interpretation
<0.2	Very weak correlation
0.2-0.4	Weak correlation
0.4-0.7	Moderate correlation
0.7-0.9	Strong correlation
>0.9	Very strong correlation

Based on the results in Table 8, the PMC correlation analysis shows the significant relationships between the motivation factors and employee job satisfaction. The analysis reveals a positive and either strong or moderate relationship between all motivation factors and job satisfaction ($r > 0.629 - 0.882$, $p < 0.05$). This suggests that there is a meaningful connection between each of the motivation factors and job satisfaction.

Table 8: The Results of Pearson Correlation Analysis

Motivational Factors		Achievement	Advancement	Work Itself	Recognition	Growth	Company Policy	Relationship with Peers	Relationship with Supervisor	Money	Working Condition
Job Satisfaction	Pearson Corr.	.777*	.629*	.751*	.747*	.803*	.815*	.833*	.814*	.726*	.882*
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

* Correlation is significant at the 0.01 level (2-tailed).

The study results demonstrated that working conditions produced the most significant positive relationship ($r = 0.882$) with job satisfaction because organizations must establish supportive workplace environments. Thus, job satisfaction maintained strong correlations to peer ($r = 0.833$) and supervisor ($r = 0.814$) relationships as part of interpersonal dynamics. Job satisfaction showed strongly linked to structural elements of Organization Policy and opportunities for growth together with other significant relationships ($r = 0.815$ and $r = 0.803$ respectively). Therefore, the preliminary data indicate that work satisfaction results from multiple environmental elements as well as relational dynamics and organizational development aspects which need more research in upcoming phases of investigation.

Reliability of the Correlations: All correlations observed in this study are statistically significant at the $p < 0.01$ level, indicating that the relationships between the work motivation factors and job satisfaction are not due to random chance. Consequently, the significant correlations between motivational factors and job satisfaction establish strong evidence concerning the meaningful relationship between achievement, recognition, working conditions and peer and supervisor relationships and job satisfaction. The strong correlations demonstrate that these motivational factors should be included in further analyses because they directly relate to the research inquiry. Moreover, the statistically significant correlations establish a reliable foundation for advanced studies into how these motivational factors impact job satisfaction in complex statistical analyses.

Assumptions Verification: Pre-test analysis in this study verifies that the data fulfil all requirements for advanced statistical tests, particularly regression analysis which will study work motivation elements and job satisfaction relationships. The linear relationships between motivational factors and job satisfaction become apparent through significant correlations thus validating regression analysis assumptions which permit prediction of job satisfaction through linear models. The study results demonstrate that regression analysis is an appropriate method for investigating these relationships between work motivation factors and job satisfaction. The PMC requires independent variables without any mutual influence between them. Furthermore, the pre-test results demonstrate strong correlations between variables while showing no signs of multicollinearity problems thus validating separate analysis for different regression models.

4.4 The Results of Multiple Linear Regression

The first objective of this study is to identify the motivation factors (independent variables) that influence job satisfaction (the dependent variable). The evaluation used Multiple Linear Regression to identify which independent variable produces the most significant impact on LG staff job satisfaction.

The prediction equation used in this study is:

$$Y = b_0 + b_1X_1 + b_2X_2 \dots$$

where:

Y = Job Satisfaction

b_0 = Y-Intercept

$b_1, b_2, \dots$ = Slope (regression coefficients)

X_1 = Independent Variable 1

X_2 = Independent Variable 2 ...

Based on the analysis in Table 9, the prediction equation is:

$Y = 0.047 + 0.107X_1 + 0.009X_2$. This can be interpreted as follows:

- a) For each 1-unit increase in the level of the achievement factor, job satisfaction increases by 0.107 units.
- b) For each 1-unit increase in advancement, job satisfaction increases by 0.009 units, and so on.

The results from the Multiple Linear Regression analysis are shown in Table 9 below:

Table 9: Multiple Regression Analysis of Motivation Factors on Job Satisfaction.

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig. (p)
	B	Std. Error	β		
(Constant)	0.047	0.078	-	0.603	0.547
Achievement	0.107	0.030	0.101	3.528	0.000
Advancement	0.009	0.023	0.009	0.394	0.694
Work Itself	0.054	0.029	0.054	1.866	0.063

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig. (p)
	B	Std. Error	β		
Recognition	-0.040	0.030	-0.044	-1.334	0.183
Growth	0.030	0.032	0.030	0.935	0.350
Organization Policy	0.078	0.033	0.082	2.361	0.019
Relationship with Peers	0.247	0.027	0.251	9.054	0.000
Relationship with Supervisor	0.094	0.028	0.109	3.359	0.000
Money	0.083	0.019	0.104	4.374	0.000
Working Condition	0.330	0.029	0.365	11.451	0.000

$$F = 359.49 \quad R = 0.938$$

$$\text{Sig-}F = 0.000 \quad R^2 = 0.879$$

Table 10: Interpretations of R-Value by Cohen (1988)

R-Value	Interpretation of Relation
≥ 0.02	Small
≥ 0.15	Moderate
≥ 0.35	Large

Based on *Guilford's Rule of Thumb* (refer to Table 7), with an R-value of 0.938 (as shown in Table 9), there is a very strong positive relationship between the motivational factors on job satisfaction. In this study, the effect size of the regression test was determined using Cohen's (1988) guidelines, with the values and strength of the relationships detailed in Table 10 above. The R^2 -value of 0.879 indicates that 87.9% of the variance in job satisfaction is explained by the variables of motivational factors. This strong positive relationship highlights that these attributes are highly significant in contributing to employee motivation and satisfaction. However, 12.1% of the variance in job satisfaction remains unexplained by this study. Other factors, particularly those related to other HR development, such as competency development, may also significantly influence job satisfaction.

VIF Values of Independent Variable

In this study, the Variance Inflation Factor (VIF) values for all predictors were below 5, indicating that multicollinearity is not a significant issue in the regression model. The VIF values for the ten motivational factors ranged from 2.261 to 4.894, as indicated in Table 11 below, suggesting low to moderate collinearity between the independent variables. These results ensure that each predictor's contribution to job satisfaction can be interpreted independently, without the influence of high correlations among them. Since none of the VIF values exceed the threshold of 5, the regression model is considered reliable. The findings suggest that the independent variables provide unique contributions to explaining job satisfaction, and the coefficients are stable. This strengthens the validity of the regression results and reduces the risk of misleading conclusions caused by multicollinearity.

Table 11: VIF Values of Independent Variable

Independent Variable	VIF
Achievement	3.363
Advancement	2.261
Work Itself	3.466
Recognition	4.431
Growth	4.332
Organization Policy	4.894
Relationship with Peers	3.154
Relationship with Supervisor	4.308
Money	2.325
Working Condition	4.144

The Significant Predictor of Job Performance

The analysis of this study also shows that the *Sig-F value* (0.000) is less than α (0.05), indicating that the regression model fits the data at a significance level of 0.05. This confirms that at least one or more predictors significantly influence job satisfaction (the dependent variable). Multiple regression analysis enabled the assessment of which independent variable demonstrated the highest

influence while showing significant contribution and being the most predictive of job performance. Based on Table 9, the findings show that only **six (6)** of the ten (10) factors have a significant influence on job satisfaction (*as shown in Table 12*).

Table 12: The Most Significant of Motivational Factors to Job Satisfaction.

Rank	Independent Variables	Standardized Coefficients β	t	Sig. (p)
1	Working Condition	0.365	11.451	0.000
2	Relationship with Peers	0.251	9.054	0.000
3	Relationship with Supervisor	0.109	3.359	0.000
4	Money	0.104	4.374	0.000
5	Achievement	0.101	3.528	0.000
6	Organization Policy	0.082	2.361	0.019

However, when comparing these six factors, ***working condition has a greater impact*** on job satisfaction among LG staff in the Pahang State because it accounts for 36.5% of the variance in job satisfaction, compared to other factors. This is explained by the standardized coefficient (β) that directly indicates the strength of each factor's contribution to the dependent variable (job satisfaction). It was followed by Relationship with Peers, Relationship with Supervisor, Money, Achievement, and Organization Policy. From the six significant factors, ***five are extrinsic (working conditions, relationships with peers, relationship with supervisor, money, and Organization Policy)***, while ***only one is intrinsic (achievement)***. This is aligned with Herzberg's Two-Factor Theory, which suggests that extrinsic factors fulfil basic needs and psychological needs, while intrinsic factors are linked to higher-level self-fulfilment. The study confirmed that extrinsic motivation has a more significant positive relationship with job satisfaction than intrinsic motivation, supporting the first hypothesis of the study.

*Consequently, the first hypothesis, stating that 'Extrinsic motivation has a more significant relationship with job satisfaction than intrinsic motivation', is **supported**.*

4.5 The Comparison of Employee Motivation Factors by Location (Urban-Rural)

This study used the T-test to explore how demographics might influence motivation factors, focusing on the six significant factors identified in the previous regression analysis to ensure consistency. The first comparison looked at location as a demographic factor, comparing employees in urban and rural settings. Table 13 presents the T-test results for each motivation factor, comparing urban and rural LG employees. A variable is considered significant if its p-value is 0.05 or lower.

Table 13: T-test Results - Motivation by Location (Urban vs Rural)

Variable	Urban-Rural	N	Mean	Std. Deviation	F	Sig. (p)
Achievement	U	322	4.2930	0.5989	0.007	0.178
	R	183	4.3679	0.6047		
Organization Policy	U	322	4.0352	0.6451	1.844	0.113
	R	183	4.1330	0.7014		
Relationship with Peers	U	322	4.3199	0.6294	1.939	0.460
	R	183	4.3643	0.6827		
Relationship with Supervisor	U	322	4.1739	0.6709	10.808	0.643
	R	183	4.2077	0.8441		
Money	U	322	3.9410	0.7762	1.309	0.101
	R	183	4.0628	0.8404		
Working Condition	U	322	4.1398	0.6795	1.795	0.680
	R	183	4.1667	0.7492		
Job Satisfaction	U	322	4.2026	0.6224	0.667	0.359
	R	183	4.2568	0.6637		

Note: * $\leq .05$, ** $\leq .01$, *** $\leq .001$

An Independent T-test was conducted to compare employee motivation between urban and rural LG (LG) employees. Analysis results indicate that there are **no statistically significant** variations between the two groups for all motivation variables including achievement, Organization Policy, peer and supervisor relationships, monetary rewards and working conditions because the p-values remain above the 0.05 threshold. Although rural employees had slightly higher mean scores for most variables, these differences were not large enough to suggest a meaningful variation in motivation factors between the groups. The lack of significant difference suggests that both urban and rural LG employees have

similar perceptions of the motivational aspects of their work. In other words, urban and rural employees seem to feel alike when it comes to what motivates them. This implies that both groups face similar challenges and benefits in their work environment, likely because the same policies and practices are applied across all organizations.

*Thus, the hypothesis 2(a), stating that there is a significant difference in motivational factors between urban and rural employees, is **not supported**.*

4.6 The Comparison of Employee Motivation Factors by Gender

An Independent T-test analyzed how gender affects motivation levels in LG employees in order to enhance understanding of workforce motivational patterns. The T-test analysis results for motivation factors appear in Table 14 according to gender distribution. The p-value determines significance when it falls below 0.05. The table shows motivation factors which demonstrate significant differences between male and female employees thus providing valuable information about gender-based motivation effects.

Table 14: T-test Results - Motivation by Gender

Variable	Male-Female	N	Mean	Std. Deviation	F	Sig. (p)
Achievement	M	347	4.3708	0.6020	0.232	0.005**
	F	158	4.2089	0.5871		
Organization Policy	M	347	4.1287	0.6677	0.731	0.004**
	F	158	3.9430	0.6497		
Relationship with Peers	M	347	4.4054	0.6317	0.043	0.000***
	F	158	4.1835	0.6619		
Relationship with Supervisor	M	347	4.2517	0.7173	0.543	0.003**
	F	158	4.0422	0.7634		
Money	M	347	4.0346	0.8101	0.071	0.040*
	F	158	3.8766	0.7731		
Working Condition	M	347	4.1873	0.7088	1.595	0.074
	F	158	4.0665	0.6914		
Job Satisfaction	M	347	4.2745	0.6385	2.718	0.006**
	F	158	4.1076	0.6223		

Note: * $\angle .05$, ** $\angle .01$, *** $\angle .001$

The T-test analysis shows significant differences in motivation between male and female employees in LG (LG) organizations. There are **five out of six factors** like achievement, Organization Policy, relationships with peers, relationships with supervisors, and monetary rewards had significant differences, while working conditions showed no major variation. Relationships with peers is the factor that had the most significant difference between male and female, with p-value at 0.000. These results give important insights into how gender affects employees' views on their work and what motivates them:

1. Achievement

Male employees scored higher than females on the achievement factor (M=4.3708, F=4.2089, p=0.005). This means men feel more satisfied or recognized for their accomplishments compared to women.

2. Organization Policy

The evaluation of company policies by male employees reached higher scores (M=4.1287) with statistical significance (F=3.9430, p=0.004).

3. Relationships with Peers

Research data revealed that male workers scored their peer relationships higher than female workers did. The study revealed male employees scored higher (M=4.4054) than female employees (M=4.1835) at p-value 0.000, which indicates the greatest distinction between these two groups.

4. Relationships with Supervisors

Male employees showed higher positive ratings (M=4.2517) for their supervisor relationships than female employees (M=4.0422) according to statistical data with p=0.003.

5. Monetary Rewards

The survey results showed men rate monetary rewards at a higher level (M=4.0346, F=3.8766, p=0.040) than women do.

6. Working Conditions

The working conditions assessment scores from men (M=4.1873, F=4.0665) showed a small difference, but this difference was not statistically significant (p=0.074).

The results indicate that workers from both genders share comparable perspectives regarding their physical work environment and its associated elements. The analysis identifies key focus where gender proves influential in employee work motivation perspectives. Most employee satisfaction ratings were higher among male workers, which suggests female employees experience additional workplace challenges or unfulfilled needs.

*Thus, the hypothesis 2(b), stating that there is a significant difference in motivational factors between male and female employees, is **supported**.*

4.7 The Comparison of Employee Motivation Factors by Marital Status

The T-test analysis was conducted to compare employee motivation factors between married and single employees. Table 15 presents the results of the T-test analysis, showing how employee motivation factors differ based on marital status. The analysis includes significant motivation factors, comparing the responses of employees from different marital status groups. A variable meets statistical significance when its p-value reaches or falls below 0.05 which demonstrates a notable difference between groups. Research indicates that marital status produces substantial effects on a motivation factor which demonstrate contrasting motivational elements between married and unmarried workers. Table 15 demonstrates significant findings about how marital status shapes employee motivation based on the research results.

Table 15: T-test Results - Motivation by Marital Status

Variable	Married-Single	N	Mean	Std. Deviation	F	Sig. (p)
Achievement	M	404	4.3482	0.5929	0.383	0.036*
	S	101	4.2079	0.6251		

Variable	Married-Single	N	Mean	Std. Deviation	F	Sig. (p)
Organization Policy	M	404	4.0833	0.6612	0.104	0.392
	S	101	4.0198	0.6909		
Relationship with Peers	M	404	4.3441	0.6475	0.079	0.576
	S	101	4.3036	0.6568		
Relationship with Supervisor	M	404	4.1922	0.7124	3.369	0.710
	S	101	4.1617	0.8348		
Money	M	404	4.0223	0.7584	12.618	0.069
	S	101	3.8366	0.9437		
Working Condition	M	404	4.1386	0.6907	2.347	0.488
	S	101	4.1931	0.7615		
Job Satisfaction	M	404	4.2395	0.6222	1.471	0.226
	S	101	4.1535	0.6946		

Note: * $\leq .05$, ** $\leq .01$, *** $\leq .001$

The T-test analysis revealed significant differences in **only one of the six** employee motivation variables, which is achievement, based on marital status.

1. Achievement

The achievement factor received higher scores from married employees (M=4.3482) than single employees (M=4.2079) and the p-value reached 0.036 indicating a statistically meaningful distinction. Married employees demonstrate higher achievement scores than their single counterparts based on the findings. However, the study discovered no significant variations in other motivational elements between married and single workers. Both groups gave similar ratings, suggesting that marital status doesn't have a major impact on how they view these aspects of work motivation. This indicates that workplace policies and environments are likely applied fairly to all employees, regardless of marital status.

*Thus, the hypothesis 2(c), stating that there is a significant difference in motivational factors between married and single employees, is **supported**.*

4.8 The Comparison of Employee Motivation Factors by Seniority

The T-test analysis was used to compare differences in employee motivation factors based on seniority in service. This analysis aimed to explore how seniority impacts employee motivation among LG employees as part of this study. Table 16 shows the results of the T-test, displaying the motivation scores for each factor in relation to the seniority of LG employees. A variable is considered significant if its p-value is 0.05 or less. The table highlights that seniority did not lead to any significant differences in employee motivation for the factors analysed.

Table 16: T-test Results - Motivation by Seniority

Variable	Junior-Senior	N	Mean	Std. Deviation	F	Sig. (p)
Achievement	J	221	4.2821	0.6336	3.524	0.210
	S	284	4.3498	0.5747		
Organization Policy	J	221	4.0287	0.7097	4.920	0.219
	S	284	4.1033	0.6312		
Relationship with Peers	J	221	4.3137	0.6810	5.350	0.502
	S	284	4.3533	0.6234		
Relationship with Supervisor	J	221	4.1508	0.7794	6.031	0.349
	S	284	4.2136	0.7037		
Money	J	221	3.9118	0.8462	8.132	0.073
	S	284	4.0423	0.7612		
Working Condition	J	221	4.1041	0.7249	0.547	0.202
	S	284	4.1849	0.6882		
Job Satisfaction	J	221	4.1629	0.6801	5.901	0.069
	S	284	4.2685	0.5995		

*Note: * $\angle .05$, ** $\angle .01$, *** $\angle .001$*

The results in Table 16 show that none of the factors had significant differences between the two groups, as all p-values exceeded the 0.05 threshold. The analysis demonstrates that seniority does not significantly impact employee motivation across the factors analysed. Both junior and senior employees rated achievement, Organization Policy, relationships, monetary rewards, and working conditions similarly. These findings suggest that motivation is consistently perceived regardless of an employee's level of experience or tenure.

Thus, the hypothesis 2(d), stating that there is a significant difference in motivational factors between seniority and junior employees, is **not supported**.

4.9 The Comparison of Employee Motivation Factors by Job Position

The T-test analysis was conducted to compare employee motivation factors based on job position. This study investigated the relationship between job positions and employee motivation at the LG level. Analysis through T-test for employee motivation factors shows results in Table 17 between managers and non-managers. The statistical significance of a variable depends on its p-value reaching 0.05 or below. The study discovered **no statistically relevant differences** regarding motivational levels between these two groups of employees. The full breakdown of findings appears in Table 17.

Table 17: T-test Results - Motivation by Job Position

Variable	Manager-Non manager	N	Mean	Std. Deviation	F	Sig. (p)
Achievement	M	20	4.4500	0.4988	1.049	0.325
	N	485	4.3148	0.6052		
Organization Policy	M	20	4.2333	0.5418	0.953	0.266
	N	485	4.0639	0.6713		
Relationship with Peers	M	20	4.3833	0.6514	0.000	0.739
	N	485	4.3340	0.6494		
Relationship with Supervisor	M	20	4.3167	0.6965	0.378	0.420
	N	485	4.1808	0.7395		
Money	M	20	4.0500	0.9583	0.988	0.712
	N	485	3.9825	0.7953		
Working Condition	M	20	4.3000	0.7145	0.059	0.330
	N	485	4.1433	0.7046		
Job Satisfaction	M	20	4.3125	0.6063	0.050	0.519
	N	485	4.2186	0.6391		

Note: * $\angle .05$, ** $\angle .01$, *** $\angle .001$

The analysis shows **no significant differences** in motivation factors between managers and non-managers. Both groups rated achievement, company policies, relationships with peers and supervisors, monetary rewards, and working

conditions similarly. This suggests that motivation is not strongly influenced by job position in this context.

*Thus, the hypothesis 2(e), stating that there is a significant difference in motivational factors between manager and non-manager employees, is **not supported**.*

4.10 Summary of Hypotheses Testing

During this research, six hypothesized relationships were tested. Three of the hypotheses were supported by the findings, while other three (H2a, H2d, and H2e) were not. The results are summarized in Table 18, with supported hypotheses being significant at least at the 0.05 level.

Table 18: Summary of Hypothesis Testing Results

	Hypothesis	Result
H1	Extrinsic motivation has a more significant relationship with job satisfaction than intrinsic motivation.	Supported
H2a	There is a significant difference in motivational factor between urban and rural employees.	Not Supported
H2b	There is a significant difference in motivational factor between male and female employees.	Supported
H2c	There is a significant difference in motivational factor between married and single employees.	Supported
H2d	There is a significant difference in motivational factor between senior and junior employees.	Not Supported
H2e	There is a significant difference in motivational factor between manager and non-manager employees.	Not Supported

4.11 The Summary of Significant Differences of Employee Motivation Factors by Demographics

Table 19 below summarizes the significant differences in employee motivation factors by demographics, based on the analysis in paragraphs 4.5 to 4.9. The table highlights how different employee groups perceive motivation at work. Urban and rural employees generally view motivation similarly, with no significant differences in how they feel motivated. However, gender does make a difference, as men tend to feel more motivated than women in most areas, except for working conditions, where both groups feel the same. Married employees feel more accomplished in terms of achievement compared to single employees, though they don't differ much in other areas. When it comes to seniority, both junior and senior employees share similar views on motivation. The same applies to job positions, where managers and non-managers have almost identical opinions. Overall, the results suggest that most groups feel similarly about motivation, with the main differences appearing in gender and marital status.

Table 19: The Summary of Significant Differences of Employee Motivation Factors by Demographics

Demographic	Achievement	Company Policy	Relationship with Peers	Relationship with Supervisor	Monetary Rewards	Working Conditions
Urban-Rural	NSD	NSD	NSD	NSD	NSD	NSD
Gender	Men scored higher	Men scored higher	Men scored higher	Men scored higher	Men scored higher	NSD
Marital Status	Married scored higher	NSD	NSD	NSD	NSD	NSD
Seniority	NSD	NSD	NSD	NSD	NSD	NSD
Job Position	NSD	NSD	NSD	NSD	NSD	NSD

*NSD - No Significant Difference

4.12 Interview Results

This study conducted interviews to answer Research Question 3: What are the underlying causes or explanations for the significant differences identified in Research Question 2? In other word, this research investigated the '*why factors*' of the differences in work motivation factors linked to gender and marital status. Based on Table 19, this section will discuss why male employees scored higher in relationship with peers, relationship with supervisor, Organization Policy, achievement, money. Apart from gender differences, the interview findings also explore why married employees scored higher in achievement motivation. A summary of themes and codes for these explanations can be found in Figure 7 and Figure 8.

4.12.1 Why men experience greater motivation from peer relationships.

Theme 1.1: Communication

Men and women deal with workplace communication in different ways. Men are often described (by themselves and by women) as less emotionally sensitive. Women are seen as more emotionally reactive and more affected by how others treat them. These emotional reactions can change how much effort they put in when working together with other people.

Codes 1.1.1: Emotional Attitude:

Many participants believed that women were more likely to take workplace criticism personally. This can lower their motivation. In contrast, men are said to ignore small issues and continue working as usual. Int-D shared:

"...Women, if she has something unsatisfied, she keeps it inside... In the end, she might become demotivated, but if it's a man, he's just okay, even more motivated to do his work".

Int-I, a female manager, agreed about this and said:

"Men are not soft-hearted and don't get easily hurt, while women are more emotional... Easily clash in opinions".

Int-G also supported this, saying that:

“Men don’t bother thinking about small matters, while women are fussy and overthink small things”.

Int-D also mentioned that:

“Women may feel upset longer when corrected by their peers, but men ‘do not take it to heart’ and move on”.

Codes 1.1.2: Avoiding conflict and staying peaceful:

Because men are less emotionally defensive, their work relationships are often calmer. Some participants said men don’t argue much or hold grudges. Int-I said:

“Men rarely get into quarrels, this is because men don’t take things too personally”.

In contrast, women are more likely to have disagreements due to emotional involvement. Int-H described women as “complicated” in relationships, saying:

“If a woman feels left out, she will immediately become demotivated”.

Men usually don’t keep negative feelings bottled up. They are quicker to let things go or deal with them casually. This means that for men, peer relationships remain a strong source of motivation. Yet, for women, if there is too much emotional stress in their lives, it can negatively impact their relationships and make them feel less motivated.

Theme 1.2: Friendliness

Men and women have different ways of making friends at work. Men often tend to be more open, friendly, and quick to make lots of connections with others. Women often tend to be more reserved, whether it’s because they’re shy or being professional, so they usually have fewer friends, but the ones they do have are closer.

Codes 1.2.1: Making friends:

Men often spoke about how easy it is for them to get along with others. Most of the participants said women’s social interactions are limited compared to men’s.

Int-E said:

“Men are more open, while women are mostly shy or hesitant”.

Int-B also supported this, saying that:

“...Men will hang out with everyone equally... A man can just join in, no problem”.

Int-F, a female Mayor, said:

“...Women’s... Their openness is somewhat lacking”.

She explained that some women don’t like sharing tasks because of pride or competitiveness, as women always argue:

“... If you think you’re better than me, so you do it”.

These behavioural patterns might make it harder for women to make close friendships, while men are more likely to make these connections easily, which can help them feel more motivated.

Codes 1.2.2: Informal bonding:

Men also get close by doing things together, like eating lunch, playing a game, or just having a laugh (gang culture). Int-C said:

“Usually when having lunch, men will pay for meals together, but women eat together but pay separately”.

He also noted that men always ‘need friends’ and prefer working in groups. He stresses that:

“If one team member is missing, feels like not enough quorum... The group isn’t complete, so it’s harder to work today... But women, however, can work alone... Without any issue”.

This shows that women may not need group belonging as much. Men, on the other hand, gain energy and motivation from being part of a group. Also, since many workplaces still reflect a male-dominated culture (like an “old boys’ club”), male bonding is easier to maintain. Meanwhile, women might spend less time hanging out with friends after work because they have to take care of their families or they don’t get as many chances to lead at work. In the end, men get more motivation from strong group bonds, while women may not get the same benefit from peer relationships.

Theme 1.3: Inclusion

Both men and women value support from peers, but men seem to rely on it more and have an easier time getting it. Women may also feel left out or worry

about being trusted less, which can make it harder for them to get the most out of peer support.

Codes 1.3.1: Peer support:

Many participants said having friends at work is a strong motivator, especially for men. Int-C said:

“Usually, men like working in groups... They will have energy from it”.

Int-G said employees rarely turn to psychologists but get support from their friends. She said:

“Whatever it is, we do not even know the psychologist... So, in the end, we want to share or vent to our friends”.

So, colleagues become the main outlet for their stress. Since men have more social connections (as mentioned earlier), they can always find someone to talk to. This helps them stay motivated. Women do value peer support too. Int-G confirmed:

“In your workplace... Colleagues are very important, but you...If you ostracize someone... They will become demotivated”.

But women may be more vulnerable to feeling left out, especially in a male-dominated workplace.

Codes 1.3.2: Exclusion Issues:

Some women shared stories of feeling left out or overloaded. Int-G mentioned that:

“...Since women are seen as hardworking, more and more work gets dumped on the women”.

This made her feel like some male peers weren't doing their part, which hurt team trust. Int-F also said that:

“...When women feel they aren't trusted by peers or bosses... Women will lose interest, feel reluctant and avoid tasks”.

Men didn't talk much about being excluded or not trusted, likely because they already feel included. Women might not be invited to social gatherings or may choose not to join because of family commitments.

Int-D, a male participant said men will easily include others in any of their work or activities, and this might mostly apply to other men:

“...If come to men, they will invite you... If you have time... Just join in, no problem”.

Int-F said that some women might be shy about sharing how they feel and end up comparing themselves to others, which can make them feel disconnected from their friends. In short, men usually feel supported and accepted at work. This helps them stay motivated. Women, however, might see peer relationships as stressful if they feel left out, untrusted, or unsupported. This difference helps explain why peer relationships motivate men more than women.

4.12.2 Why men experience greater motivation from supervisor relationships.

Theme 2.1: Supervisor Feedback

One major theme that emerged from the interviews was the difference in emotional reactions to supervisor feedback, particularly criticism.

Codes 2.1.1: Social Harmony:

Many participants noticed that men are usually not as upset by negative feedback from their bosses, while women often feel more affected by it. This difference can impact how motivating, or demotivating, the supervisor's actions are. Int-I explained that:

“...Men are not the emotional type. So, when a supervisor reprimands or scolds them, they don't hold onto it. It's different with women... She is more emotional”.

This suggests that men are more likely to shrug off criticism and keep going, while women might take negative feedback to heart and feel less motivated as a result. Int-C also observed that:

“...Women often “keep things inside” when upset, which can lead to demotivation, whereas men tend to stay focused and continue working after being criticized”.

That means, men's ability to handle emotions helps them stay on good terms with their supervisor, even when things get tough. In contrast, women, who may be more emotionally affected by criticism, may struggle to stay motivated if their relationship with the supervisor becomes strained.

Codes 2.1.2: Emotional Resilience:

Several interviewees said that women often care a lot about getting along with others at work, which can make them more likely to feel left out or hurt by negative comments. Int-H mentioned that:

“...Once you isolate someone, She will indeed get demotivated...”

showing that women can feel very affected when they are left out of personal or work situations. Men, on the other hand, often don't let this kind of conflict get to them as much, so they can keep working well and stay motivated even when things get tense at work.

Theme 2.2: Supervisor Trust

Another theme centered on the importance of feeling trusted and valued by the supervisor. Both male and female employees reported that a supportive and trusting supervisor relationship motivates them.

Codes 2.1.2: Feeling Valued:

However, women seemed to be more affected when they felt their supervisor lacked trust or recognition. Int-I shared an example:

“When you don't trust a female officer to do the work... [she will feel] She isn't appreciated and isn't trusted. She'll avoid meeting the boss, and she'll only do the job at a bare minimum... Not perform beyond what's necessary”.

This suggests that when female employees feel like they aren't being appreciated, they might stop trying as hard and just do the minimum to get by. On the other hand, male employees are more likely to feel motivated and trusted, which encourages them to go above and beyond. Int-G explained that:

“...Women often do not receive the same recognition for their hard work, especially in male-dominated environments. Women might end up doing a lot of unnoticed work, while men's achievements are more likely to be acknowledged...”.

This imbalance can make female employees feel that their work isn't being noticed or valued as much as it should be.

Theme 2.3: Gender Bias

Another theme centered on how gender biases can impact the relationship between a supervisor and a subordinate.

Codes 2.3.1: Supervisor Bias:

It was mentioned by several interviewees that male supervisors often have better connections with male employees since they might have more in common. Male workers may have more trust and support from their supervisors because of this “homophily”. Int-A shared:

“...If the supervisor is a man and the staff is also a man... Of course, a man understands a man... It’s easier”.

This indicates that male bosses have better relationships with male staff and inspire them more. In contrast, female employees may face difficulty forming the same rapport with male supervisors, especially if the supervisor is not as comfortable communicating with women. In addition, women can face difficulties due to gender bias in leadership. Female employees often feel excluded from important projects or decision-making discussions. Int-F explained that:

“...When a male supervisor “doesn’t believe a woman can do the job,” it erodes trust and limits opportunities for women to prove themselves...”.

This creates a cycle where men are given more opportunities for growth, while women are sidelined, leading to demotivation and disengagement.

Theme 2.4. Gender Roles

Codes 2.4.1: Work Commitment:

Many of the interviewees agreed that men are driven by their jobs, since they are usually responsible for the financial support of their families. The constant push for financial security results in men paying more attention to their jobs and interactions with their supervisor. Int-B noted:

“The man is the head of the family, the source of income... That’s why I feel male employees are more motivated... They need to work harder and be tougher in that situation, normally they will strive for success and keep their relation at best”.

As a result, many men put a strong emphasis on building a positive relationship with their supervisor for career and financial growth. In contrast, since they have family and job responsibilities, it can sometimes be tough for women to focus the same amount on their role as a supervisor compared to men. Int-H shared:

"...After work, women are still occupied with family chores... Whereas men, when they go home, they don't do much housework... So, when they come to the office, they are fresh, not tired".

Due to this double burden, women may be less likely to look for more time with their supervisor because other matters in their lives are more important to them.

4.12.3 Why men experience greater motivation from 'Organization Policy'.

Theme 3.1: Policy & Security

A recurring theme in the interviews was that many men in the interviews agreed that company policies help to secure family stability and advancement in their careers, especially for those who are married. Since they saw it as their duty to provide for the family, these policies made them strive to improve their financial and career situations.

Codes 3.1.1: Financial Stability:

Many participants mentioned that having company policies in place helps provide financial security for their families. Int-C explained:

"...Men are more motivated by company policies because they see them as ways to advance their careers and provide stability. These policies help them secure a financial future for their families".

This viewpoint reflects the traditional belief that men are expected to be the main providers of income in society. For most families, financial policies continue to be crucial for keeping life comfortable. Having a duty toward their families, men are more likely to support policies that guarantee future income and career progress.

Codes 3.1.2: Family-Oriented Policies:

Participants said that many married men viewed work flexibility, aid for their families, and retirement plans were helpful because they could use them to meet the needs of their families. As Int-E shared:

“...Married men find company policies like work flexibility and paid leave more motivating because they directly support their family duties. These policies are crucial for providing for their loved ones”.

Family care was supported mainly by policies that allowed for a good work-life balance, which made people feel more attached to them. On the other hand, lots of women, especially married women, thought company policies did not consider their family and childcare duties enough. Many people felt that family-oriented policies were not enough or were not given to women fairly, especially when it seemed like these policies were created with men in mind. As a result, women found themselves less involved with policies that looked like they benefited men more.

Theme 3.2: Policy Bias

Many participants felt that the policies of the company were designed and enforced in a biased manner. It was believed by many women that policies were not as helpful to them since men have often held the top leadership positions and such policies did not consider the added responsibilities women have in the family.

Codes 3.2.1: Exclusion of Women's:

Many participants said that company rules failed to address the difficulties faced by women, often related to work-life balance and childcare. Int-G shared:

“...Women feel restricted by company policies that demand long working hours or travel. They have to manage family duties, and these policies don't take into account the burden of additional family responsibilities”.

The lack of recognition in policies left women feeling apart from decisions that were made for men, who often had more freedom to work and were more likely to have better-paying jobs.

Codes 3.2.2: Male Career Booster:

Several participants, particularly women, noted that most policies were made with a male-centered outlook, focusing more on benefits for men, such as overtime pay, chances to travel, and leadership positions. Int-I explained:

“...Policies often reflect male leadership, which may unintentionally prioritize their needs... Men are more likely to benefit from these policies because they align with their goals of upward mobility”.

It highlights the way company policies that are gendered affect people's opinions of fairness, with men being more likely to value policies that help them advance their careers. In essence, men are encouraged by policies that help them succeed at work, while women with family duties feel left out of the same benefits.

Theme 3.3: Culture & Power

The organizational culture was another important theme identified in the interviews. In companies where males held most positions of authority, policies generally benefited male workers. Many men perceived policies as beneficial and regarded themselves as valued members of the organization. At the same time, women working in organizations traditionally dominated by men might believe that policies were not designed to meet the needs of female employees.

Codes 3.3.1: Male Empowerment:

Men often believed that organizational policies allowed them to progress in their careers and take on leadership positions. Int-B emphasized:

“...Men view company policies as a way to climb the career ladder. They are more motivated by policies that promise career growth, bonuses, and leadership roles”.

This sense of ease in following policy-related paths stems from the fact that many organizations have traditionally been led by men and are therefore seen as reflecting the interests of men.

Codes 3.3.2: Women's Disempowerment:

In contrast, women often expressed feeling excluded from the design of company policies, which made it harder for them to connect with the policies emotionally. Int-J explained:

“...Women often feel excluded from policy creation, which makes it hard to support policies that don't seem designed with their needs in mind...”.

Many women felt disconnected because policies tended to favour men's backgrounds in leadership and better-paid positions. As a result, women were less

motivated by policies they saw as irrelevant to their needs or misaligned with their career goals.

Theme 3.4: Psychological & Role

Both self-perception and career aspirations had a major influence on how motivated women and men were at work. Men who were married to support their families and contribute to their companies' growth were much more engaged by policies that encouraged professional development and financial security. Single employees and particularly women, typically did not feel as driven to focus on career development policies offered by the company.

Codes 3.4.1: Provider Identity:

As noted earlier, men were more likely to see policies as tools to fulfil their role as providers. Having access to benefits like financial rewards, retirement plans, and family leave was crucial for married men in providing for their families. Int-C mentioned:

"...For married men, policies are crucial... It is because they ensure stability and help us provide for our families".

They were more inclined to be attracted to policies that provided stability and monetary benefits because of their sense of duty.

Codes 3.4.2: Women & Low Policy Drive:

In contrast, many women found it hard to relate to their company's policies since they did not prioritize the same benefits that these policies provided. As Int-H explained:

"Single employees, especially women, often find company policies irrelevant to their needs. Men are more motivated by them because they see policies as a path to success, but I don't feel that need in the same way".

This shows that women have unique priorities that often cause them to disengage from policies that are not relevant to their lives or professional jobs.

4.12.4 Why men experience greater motivation from ‘achievement’.

Theme 4.1: Traditional Gender Roles

One important theme that came up was how family roles and responsibilities shape how men and women focus on achieving success at work. Society expects men to be the main earners and women to take care of the family, which leads to different pressures on their motivation

Codes 4.1.1: Breadwinner Identity:

According to several participants, men are more motivated to succeed because of their responsibility as the breadwinners in their families. For example, Int-C explained that:

“...Male employee... As the family breadwinner... Needs financial rewards... So, he is more driven to seek raises and promotions to support his wife and children... In contrast, a married woman might be ‘satisfied with what she has’, because her husband is the main earner”.

As a result, women may be less inclined to strive for other accomplishments due to the need for more income. Int-B said that:

“...Men feel a “main responsibility” for family needs, pushing them to work harder and “be ahead” of women”.

Men feel the need to move up in their careers, whereas women with partners who also work often devote less of their energy to achieving their own goals.

Codes 4.1.2: Domestic Workload:

Female participants pointed out that women do more household work after their office hours, which leaves them with less energy to aim for work achievements. Int-I observed that by the end of the workday:

“...We [women] are already tired... And at home, there is more work... The next day we come to work still tired, while men, when they come home, they don’t do much housework... So, when they come to the office, they’re fresh, not tired”.

Having the energy to work helps men achieve more at the office, but women are often tired from juggling home and career responsibilities. Over time, this imbalance can reduce women’s motivation to take on extra tasks or leadership

roles, not because of a lack of ambition, but because they are physically drained.

Int-D gave an example:

“A woman doesn’t want overtime; she’d rather go home to cook and take care of the children. A man sometimes has to go for overtime... With that money he can buy things for his kids”.

It reveals that men often choose to work more in order to support their families, whereas women focus on taking care of the household. Traditional gender roles can influence a person’s motivation to work. Men work hard to earn an income and support their families, while many women modify their career paths to better accommodate their home life.

Theme 4.2: Career Barriers

Another theme discussed the workplace structures that make achievement easier or more attractive for men than for women. Such issues lead to a lack of women in positions of authority and advancement within LG.

Codes 4.2.1: Promotion Access:

Interviewees noted that most leadership roles are filled by men, leading to increased drive and determination among men and less of both qualities in women.

Int-H shared that:

“...As you can see... In management and professional levels, there are mostly men, and in support roles there are many women”.

Int-G support this by saying that:

“...So, the higher achievement [scores] for men make sense... Up top, it’s largely men as section heads and department heads. The opportunities for women... Are not as great... They are limited”.

The quote illustrates how men hold most of the leadership positions and make it more difficult for women to move up the career ladder. A lack of opportunity for women to move up in their careers can lead them to lose interest in striving toward their full potential. Meanwhile, men tend to believe they can reach leadership roles since they are already being represented in those positions, boosting their self-assurance and drive to climb the corporate ladder.

Codes 4.2.2: Leadership Path:

Women often miss out on the informal opportunities that can significantly increase their feelings of accomplishment. Int-F argued that increasing women's participation in crucial meetings and decision-making processes would help improve their morale:

"...When she becomes a department head, she will mix with the top level... The staff at lower levels only do their work and don't mingle with the higher-ups... For example, include them in meetings so that she becomes more open and knowledgeable".

It is believed that women often find themselves in lower positions and do not have as many opportunities to take on more significant responsibilities which hold them back from realizing their full potential. Being in upper-level circles, men are more likely to be inspired and aware of the various opportunities available to them. Including women more in leadership tasks and projects was seen as key to "balancing motivation between men and women." The lack of these structural changes could leave women feeling that their efforts are unrecognized and undervalued within the system. Most LG organizations are set up to encourage men's career progress which means women often face greater obstacles when trying to climb the career ladder.

Theme 4.3: Workplace Culture

The interviews revealed that workplace culture, particularly how recognition and fair treatment are handled, affects men's and women's levels of achievement motivation in different ways. Several sub-themes were identified, including how feedback, rewards, and task allocation impact the genders unequally.

Codes 4.3.1 Recognition:

Many women felt that their hard work often goes unnoticed, which reduces their motivation to achieve. Int-I said:

"When we do our work... Sometimes the supervisor doesn't acknowledge the results. We sometimes need recognition, even a 'thank you' is okay, we'd feel appreciated. But in our culture, it's so hard to say thank you".

Unfortunately, A lack of recognition skills in supervisors is the reason behind decreasing motivation among employees. This issue affects both men and women

but was seen as a bigger problem for women. Women have often had to demonstrate their value in workplaces dominated by men. As a result, not getting credit for their efforts can be particularly disheartening. Men, on the other hand, may more often receive praise or assume their work is noticed due to the stereotype that men are natural achievers. Int-G noted that:

“...Men feel more recognized for their accomplishments...”

The interviews revealed that many women feel undervalued and as a result are less inclined to pursue their goals.

Codes 4.3.2 Supervisory Trust:

Another issue was a bias in how supervisor assigns tasks. Int-I, a female department head shared her perspective:

“...If male bosses don’t trust women’s abilities, women may feel unappreciated and avoid taking on new tasks... When [a boss] doesn’t trust a female officer to do the work, the woman will end up less motivated... She feels unappreciated and not trusted, so she will avoid the boss and just do the bare minimum...”

It leads to a vicious cycle that makes women less likely to be motivated. If women believe that no matter what, their bosses won’t trust them with important work, they will stop trying to exceed expectations. Meanwhile, men are more likely to receive the benefit of the doubt from their bosses, motivating them to take on challenging tasks. These biases cause women to be less likely to get stretch assignments or receive backing for career progress.

Codes 4.3.3 Work Visibility:

Women are often seen as more reliable, which leads to them being overloaded with routine work that doesn’t get acknowledged. Int-H shared:

“There is indeed an imbalance in task distribution... If you’re good at work, you end up having to do everything. Those who underperform, usually most of them are the men... Often get away with doing less”

This creates frustration for women, as they see others reap the rewards while they handle unrecognized work. As Int-G said:

“...When you over-perform, you will be given extra work... That can end up snuffing out your motivation”

Women become exhausted and frustrated, while men have more time to focus on high-profile projects and career growth. As a result, women tend to hold back from reaching their full potential due to the risk of burnout, while men are often pushed to take on more challenging projects and face fewer consequences for doing so. This shows workplace culture and recognition systems are misaligned. Women's accomplishments are frequently undervalued or questioned, but men are frequently rewarded and trusted which encourages them to stay motivated.

Theme 4.4: Work Styles

The final theme explored how different mindsets, approaches to work and interactions between men and women shape their perceptions of accomplishment. Different psychological and social tendencies for men and women were discussed and they were seen to influence motivation.

Codes 4.4.1 Confidence:

One common observation was that women often put a lot of emotional energy into their work relationships which at times diminished their drive. Int-H explained:

"Men... They rarely get into quarrels, they aren't so sensitive... Not 'heart on sleeve'. Women are emotional... When she's more emotional, she more easily gets into disagreements".

Men tend to bounce back more easily at work, but women may struggle with demotivation after experiencing conflicts or emotions. Int-F bluntly stated that:

"Women are influenced a lot by emotions, they will struggle... That's the reason men appear more motivated".

Men are often perceived to be more confident and proactive when it comes to their careers. Having this confidence allows them to reach for greater career heights and inspires them to pursue success, unlike women who often have to consider how best to manage all their duties.

Codes 4.4.2 Communication:

Another important difference concerns the ways in which men and women communicate at work. Men were seen as more willing to share their ideas and build connections which enables them to gain the backing they need to succeed.

Women, on the other hand, may find it harder to participate in networking and can often be more reserved in the workplace. Int-A observed,

“...Guys are easy to chat with... They’re very open, while women keep things inside... Sometimes it’s hard to communicate”.

Men who communicate openly receive support and advice for their career plans, yet women may feel separated. In the workplace, men have strong peer networks, they are often motivated to do well.

Codes 4.4.3 Achievement Drive:

Although men are known to seek rewards like promotions or bigger salaries, some women are equally motivated by other things. Int-F said,

“...In pursuing awards and such, women are more passionate, she’s willing to come in on Sunday even though she has family or other constraints, because that’s her only me-time”.

This shows that women may be more internally driven to achieve, focusing on personal satisfaction and recognition rather than material rewards. Men, however, often seek achievements that come with tangible benefits like promotions. This difference in how achievement is valued can explain why men generally report higher motivation from achievement. Thus, the interviews revealed that men’s motivation is often supported by a psychological profile and socialization that encourages ambition. They benefit from emotional resilience, strong networks, and clear career goals. Women face more emotional challenges, less support, and societal expectations that limit their ambition.

4.12.5 Why men experience greater motivation from ‘money’

Theme 5.1: Breadwinner Responsibility and Financial Priorities

One main theme was the influence of the traditional idea that men should be the breadwinners. Participants consistently explained that men’s income is seen as the main financial support for their families, which makes them highly motivated by salary, bonuses, and other financial rewards. They also often said that women’s income is considered “extra,” which makes money a less important motivator for them.

Codes 5.1.1: Main Provider:

Most participants agreed that men are expected to be the primary earners, which motivates them to seek financial rewards. Int-H said:

“Because men are the breadwinners, right... So, they are indeed more motivated to get financial rewards, whereas for women it’s more of an add-on for their family, not one of the main factors”.

In other words, a man’s paycheck is considered the family’s main income, so any opportunity for a higher salary or bonus is directly linked to fulfilling their family responsibilities. Several male officials also shared this idea. For example, Int-C explained that male employees are usually the breadwinners for the family and will quickly take on extra work for more pay, like overtime. He added:

“When mentioning a financial reward, [a man] will indeed work quickly... It motivates the men more than the women”.

For men, financial incentives are strongly tied to their duty as the provider. Earning more money is not just for themselves but for their family. On the other hand, women are not usually seen as the main earners, even when they hold high positions. Female participants described women’s income as important but usually considered secondary to their partner’s income. Int-G said:

“... We just don’t care... Just do our work... The salary will come every month anyway”.

showing that once their basic needs are met, women might not be as focused on earning extra money.

Codes 5.1.2: Supportive Earners:

Linked to this breadwinner idea is the idea that women often think of themselves as “supplementary earners.” Female participants shared that many women are raised to be happy with a stable income and to prioritize family over seeking extra pay. Int-D explained:

“Women say it’s okay if there’s no extra financial reward, it’s not a big deal, but for men, it’s important to have that financial reward”.

This shows that many women are satisfied with their basic salary, while men tend to be more motivated by financial rewards. Women also tend to focus more on other job factors, such as family balance or recognition, rather than constantly trying to get extra pay. Men’s role as the breadwinner makes them more focused

on maximizing earnings, while women, who are often in a secondary role for family support, might prioritize other things once their basic salary is sufficient.

Theme 5.2: Work-Family Priorities

Another important theme is how gendered family roles affect motivation at work. Women usually have more responsibility for domestic tasks, which makes them less likely to sacrifice personal time for extra work and pay. On the other hand, men are generally more willing to work extra hours for more pay.

Codes 5.2.1: Overtime vs. Family:

Participants consistently said that male employees are more willing to take on extra work, like overtime, for additional pay. Female employees, however, often turn down overtime in favour of family responsibilities. Int- B explained:

"...For example, [a man] has to work overtime. Why does he want overtime? Because he wants that money... While women, they don't want overtime, better for them to stay home, cook rice, take care of the kids".

This highlights how men view overtime as a way to meet financial needs for their family, while women are more likely to prioritize their family life over earning extra money. Int- D said that if the reward is time off, men would rather work extra hours instead:

"If [the reward is] getting a replacement leave, their reaction is, 'can't we do overtime instead?'".

This shows that men would rather work more to earn more, while women are more likely to prefer time off to rest or be with family.

Codes 5.2.2: Energy Divide:

Many female participants discussed the "double burden" of work and home responsibilities. Even in leadership positions, women still handle most of the domestic and childcare duties after office hours. Int-F shared:

"...In the boss's mind, maybe he thinks a woman has other responsibilities... For example, she is a mother, a wife... So, her responsibility in the office is not only that. Meanwhile, a man doesn't have to think about what to cook or picking up the children or anything like that. So, he can focus on work, even do extra work for extra money".

This shows that domestic duties take women's attention away from work, which makes them less likely to pursue extra pay. Men, who are not burdened by domestic responsibilities, can easily focus on working extra hours for more pay. Women, with more responsibilities at home, may prefer spending time with family rather than chasing extra income.

Theme 5.3: Rewards Perceptions

The third theme explores how men and women perceive money rewards and how those perceptions affect their motivation. Men tend to focus on external, tangible rewards like pay and promotion, while women tend to value internal rewards or non-financial factors.

Codes 5.3.1: Money as Status:

Many male participants said that money is a way of proving success. Int- B said that external, monetary rewards are much more important than internal achievements that don't come with any reward:

"...I may be given a certificate showing a good achievement... But that achievement doesn't give any other reward besides a piece of paper... I think for men, financial rewards are a way to prove their hard work and success".

Codes 5.3.2: Non-Monetary Rewards:

Female participants often said that factors like a supportive work environment, respect from colleagues, and personal fulfilment motivated them more than money. Int-G interviewee said:

"You actually don't care about money... But if the boss trusts and values you, you will perform, if not, you'll just do the minimum, just do your routine work only..."

This shows that for some women, feeling valued at work is more motivating than financial rewards. Men tend to see money as a sign of success, which makes them highly motivated to earn it, while women are motivated by both financial and non-financial rewards like recognition, good relationships, and meaningful work.

Codes 5.3.3: Demotivation:

Some participants shared that female did not get the same opportunities for rewards because of gender bias. Int-G observed that in her experience, women often don't get the same chances, which leads them to disengage:

"He doesn't give us the chance to take on critical work... Maybe because he thinks, as a woman, I have other responsibilities... How do we have the opportunity, or even to have the reward [money]? So, it happens... I am an example. I'm experiencing it now".

This shows that gender bias can prevent women from taking on important projects, which would lead to financial rewards. Over time, women might stop trying to pursue those rewards if they feel that they don't have the same opportunities as men. Male-oriented reward systems and gender bias in the workplace give men more opportunities to earn financial rewards, while women face barriers that make them less motivated to pursue those rewards.

Figure 7: Thematic Map of Codes from Transcripts of Interview (Why men are more motivated than women)



Source: Image by author

4.12.6 Why married employees experience greater motivation from 'achievement'

Theme 6.1: Responsibilities

Codes 6.1.1: Family Responsibilities:

A key idea is that marriage brings more family responsibilities, which leads to a stronger commitment to work and career goals. When people get married, they often take on the role of being a provider or caretaker for their family. This change makes them see work in a new way. Int-E explained:

"When someone is married, they've become the head of a family, so responsibilities are many. They learn to be responsible for many things. Compared to a single person, who has no children or spouse and only has to look after themselves... The married person has shouldered an extra responsibility".

This sense of duty also carries over to their work life. Int-F said that managing a family is like managing a team at work:

"At home, he's the head of the family... But at work, he might be a supervisor. It's basically the same thing... At home he takes care of the family, at work he takes care of office matters... So, I feel those who are married have higher motivation because of this responsibility".

In real life, married workers often show more discipline, focus, and organization at work because of their family responsibilities. Participants said that married employees are better at managing their time and tasks because they balance work and family duties. Int-E said:

"I see that those who are married have a greater sense of responsibility,". "They will arrange their schedule... What time to pick up the children, what time to go to work, and they won't waste time during work hours. But the single ones just take care of themselves. They have no planning, they're not organized".

This comparison shows that having a family helps create a routine. A married worker can't afford to waste time or slack off, knowing that their productivity affects others. Single workers, on the other hand, have more personal freedom and fewer restrictions on their time. As Int-D said:

"Single people are more free... They are not tied to a fixed life commitment, which leads to lower motivation compared to people who are married".

In short, without family duties, single employees may not push themselves as much at work. Providing for the family is a strong reason why married workers care so much about their achievements. Several interviewees said that married workers, especially those with children, see doing well at work as part of their responsibility to provide for their family. Int-C described:

"Married employees as having a 'commitment to family,'... They turn every indicator (of performance) into motivation to work".

A married employee treats work achievements, like completing a project or getting promoted, as essential for the well-being of their family, not just as nice bonuses. The need to support their family makes them highly motivated. This sense of responsibility also changes how they view rewards. Int-H explained that:

"...A single employees might be happy with just a paycheck, but a married worker cannot think only about financial rewards... They need other things (besides money) like achievement, to improve their current situation".

Work accomplishments become proof that they are successfully providing for their family. Therefore, the responsibility to their family makes these achievements even more important.

Theme 6.2: Sharing with family

Codes 6.2.1: Source of Pride:

Another important theme is that professional achievements mean more for married people because they can share them with their family. When people are married, their work success directly impacts their spouse and children. Many participants said they feel proud to show their accomplishments to their families, which increases their motivation to achieve more. Int-I said:

"When you have a family, a big accomplishment at work becomes a source of personal pride... It's something you can show to your family...For example, a husband can tell his wife, 'Look, I achieved this, or a wife can share a recognition she received with her husband".

In this way, achievements are not just personal wins but also family wins, the proof that they are a good provider or partner. Married employees also try to be role

models for their children through their career success. Many participants said that this role-model effect is a big motivator for married workers. Int-G explained that:

"...For a married worker, especially a parent, a work achievement is more than just a line on a resume... It becomes a role model situation. A father can show his kids, 'Daddy achieved this, he succeeded at that,' so it gives him very high motivation, setting himself as an icon for the family".

It's the same for mothers who want to be role models for their children by showing that they can succeed despite their many responsibilities. This quote shows how work success helps people see themselves as successful parents or spouses, which increases their motivation to achieve even more. Knowing that their family is proud of them encourages married workers to keep striving for success.

Codes 6.2.2: Recognition in the Family:

Achieving at work helps fulfil personal goals and meets social expectations, which is being a recognition as good provider and a successful partner. In many cultures, there is an expectation that when you get married, you should focus on your career to provide stability for your family. Married employees are proud when they bring home awards or promotions that show they are fulfilling their family role. On the other hand, single workers don't experience this same family-driven boost to their motivation. They don't have a spouse or children to share their successes with, so their achievements might feel less significant. As Int-I said:

"A single person can only share [an achievement] with mom and dad, that's all".

Another person pointed out that single workers don't value their work achievements as much because the emotional rewards or recognition are smaller. From Int-E, a manager's point of view,

"If someone has less commitment, whether they get a bonus or an achievement, it's all the same to them".

Without the family context, achievements don't have the same emotional impact. Married workers, however, see their achievements as confirmation that they are taking care of their families, which gives those accomplishments more meaning.

Theme 6.3: Life Stage (Maturity)

Marriage also marks a new stage in life, bringing more maturity and stability, which makes it another reason why married employees are more motivated to achieve.

Codes 6.3.1: Focus on priorities:

Many participants said that getting married helps people focus on their priorities and gives them a clearer sense of purpose. In contrast, single people, especially those in the early stages of their careers, may still be figuring things out and might not have clear career goals. Int-C said:

"For employees who are married, whether male or female, it's different than for those who are single... They have responsibilities and they feel they must have direction in their lives, unlike single people".

Married employees often set long-term goals, like advancing in their careers, because they want to build a stable future for their families. Getting married can make someone more focused and ambitious, which leads to higher motivation at work.

Codes 6.3.2: Marriage brings stability:

Marriage also brings stability, such as owning a home or having dependents, and this stability boosts work motivation. Married workers often can't afford to change jobs easily or be indifferent about career progress because they have responsibilities at home. Int-F said that:

"...Most married staff in Malaysia... More or less will own a house... At least the rent one and have a vehicle as part of settling down. They also tend to have more fixed schedules and routines".

All of these factors make married employees more anchored to steady jobs and career growth. In contrast, single employees have more freedom and can change direction without as many consequences. Int-H said:

"...Single people, are more free... They are not tied to a fixed life commitment".

which means they have less motivation than married employees. In short, being unmarried allows a person to leave a job more easily, while a married person is

more likely to stay and try to move up in their career because they have a family depending on them.

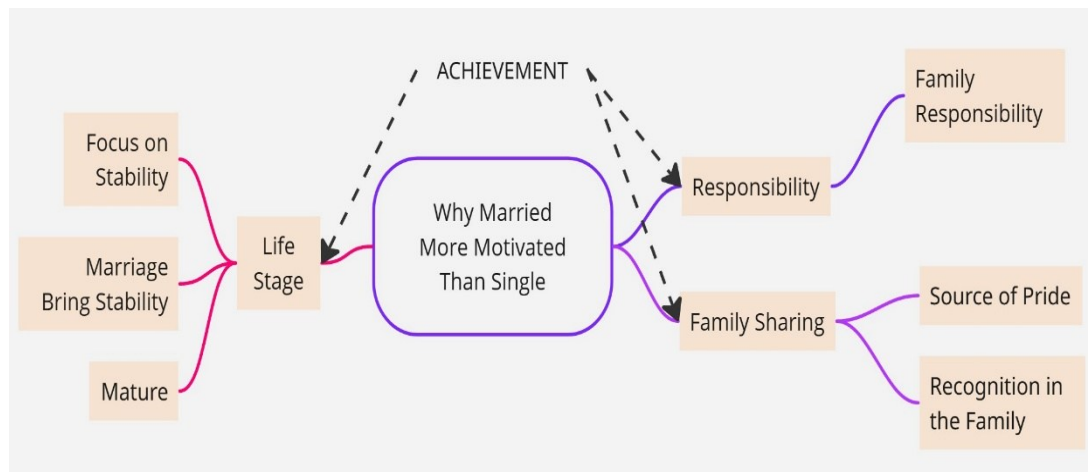
Codes 6.3.3: Mature:

Married employees are often seen as more mature and responsible, which can lead to more opportunities at work. Married workers may be trusted with more responsibilities because they already manage their family lives well. Int-C said:

“Employers might give single employees more leadership chances... So, they can act as responsible workers... Similar to their married counterparts”.

This comment shows that marital status is linked to trust and responsibility in the workplace. Married employees are already seen as dependable in life, so employers are more likely to give them important tasks or promotions, which motivates them to work harder. Single employees might have to prove themselves before they are given similar opportunities. Some married employees also reflected on their personal growth, saying that marriage taught them to be more patient, organized, and focused, which all qualities that help them set and pursue higher goals at work.

Figure 8: Thematic Map of Codes from Transcripts of Interview (Why married are employees more motivated than single)



Source: Image by author

4.13 Chapter Summary

This chapter presented findings from both survey and interview data. Quantitative findings revealed that extrinsic motivators such as working conditions, peer relationships and supervisor support were more influential to job satisfaction as compared to intrinsic motivators. Male and married workers were more motivated than females and singles. But there were no considerable differences concerning the job position, seniority, and location. These differences were explained by qualitative interviews, such as informal bonding, trust from supervisors, workplace bias, and family-related responsibilities. Collectively, these findings give a complete picture of the motivational influence on job satisfaction and precondition further discussion in the following chapter.

CHAPTER 5

DISCUSSIONS & CONCLUSIONS

5.1 Introduction

This chapter summarizes the main findings of the research and interprets them in a wider context. It begins with the discussion of the key findings of each research question, which is backed by the related theories, previous studies, and interview data. It subsequently proceeds to give the conclusions of the study, limitations as well as future research recommendations. Lastly, it provides some policy suggestions which may assist the LGs to enhance employee motivation and job satisfaction, especially through gender and marital status differences.

5.2 Discussions

5.2.1 RQ1: Significant Motivation Factors Influencing Job Satisfaction

This study's quantitative results support the Two-Factor Theory by Herzberg's (1959), which categorizes employee motivation into two distinct aspects, hygiene factors (extrinsic) and motivators (intrinsic). The regression findings from LG employees in Pahang reveal a clear pattern, employees are more responsive to extrinsic (hygiene) factors than to intrinsic motivators in shaping their job satisfaction.

Extrinsic Motivation (Hygiene Factors)

Out of the five hygiene factors examined, (1) working conditions, (2) relationships with peers, (3) relationships with supervisors, (4) monetary rewards, and (5) Organization Policy, all five emerged as statistically significant predictors of job satisfaction ($p < 0.05$). The strongest factor was working conditions ($\beta = 0.365$, $p = 0.000$), thus demonstrating that having a good workplace matters a lot for public servant satisfaction. This is similar to what Noor et al. (2023) discovered, who found that workplace design strongly impacts public sector employees' job performance in Malaysia. Social aspects were also very important, with peer relationships ($\beta = 0.251$) and supervisor relationships ($\beta = 0.109$) being both

significant, therefore showing how important interpersonal support is for motivating civil servants. Profiroiu et al. (2018) found that leadership and teamwork play a major role in Romania's efforts to reform public administration. Monetary rewards ($\beta = 0.104$, $p = 0.000$) were significant, indicating how fair people found their pay had an impact. Van Herpen et al. (2005) provided evidence that providing financial incentives linked with clear performance indicators can motivate and delight employees in structured public sectors. Clear and consistent Organization Policy ($\beta = 0.082$, $p = 0.019$) played a small yet significant role in the analysis. Similarly, Kim (2005) found that organizational justice/policy and clear procedures help raise the morale and productivity of workers in public institutions.

Intrinsic Motivation (Motivator Factors)

By contrast, among the five intrinsic motivators, (1) achievement, (2) advancement, (3) work itself, (4) recognition, and (5) growth, only achievement showed a statistically significant relationship with job satisfaction ($\beta = 0.101$, $p = 0.000$). The other four motivators were not significant predictors, therefore revealing a marked imbalance in how employees perceive internal sources of satisfaction. However, achieving set goals is meaningful, mainly in the public sector, because successfully completing them creates a feeling of purpose. Mahazril et al. (2012) discovered that, for Malaysian civil servants, achievement played a significant role in making their jobs fulfilling, mainly when it influenced the public and their professional identity.

Overall, the regression model ($R^2 = 0.879$) shows that five out of five extrinsic factors are important in job satisfaction, while just one out of five intrinsic factors is significant. Thus, the gap reflects that public employees in Pahang are more sensitive to hygiene (extrinsic) than to motivators (intrinsic). These findings reinforce the practical implications of Herzberg's theory and emphasize that while intrinsic motivators like achievement add value, nevertheless, maintaining strong hygiene foundations is essential to ensuring satisfaction and performance in Malaysia's LG context.

5.2.2 RQ2: Differences in Motivation Factors by Demographic Groups

This study aimed to see if motivation levels differed among five demographic groups: gender, marital status, work location, seniority, and their job position. When T-tests were used on the responses from 505 LG employees in Pahang, Malaysia, it was found that gender and marital status are the only demographics that had statistically meaningful differences in terms of motivation. Importantly, the differences are not created by researcher bias but come from the survey results which therefore show real and measurable opinions of employees.

Gender-Based Differences

The data analysis found that male employees had much higher motivation levels than female employees in five of the six main motivation factors: (1) achievement, (2) Organization Policy, (3) peer relationships, (4) supervisor relationships and (5) monetary rewards (all $p < 0.05$). Meanwhile, there was no significant difference in working conditions between men and women. This result therefore matches earlier studies showing that men generally report feeling more satisfied at work or respond better to incentives because of their advantages in resources, networks or career progress (Ely & Meyerson, 2000; Stamarski & Son Hing, 2015). In addition, the recent report found that men are more content with their pay, chances of moving up and how they are recognized at work, compared to women in public organizations (Pew Research Center, 2023). Among the reasons for these disparities are the fact that women have fewer chances for good careers, unequal chances for women to hold important roles or find good and strong mentors (Joshi et al., 2015). This agrees with Judge et al. (2001), who pointed out that recognition and career advancement chances play a major role in job satisfaction and are often provided unequally to men and women. Consequently, the research supports previous findings and demonstrates that these gaps are not based on subjective feelings, but rather on the organization and the system itself.

Marital Status-Based Differences

The study also revealed that married employees reported significantly higher scores in the achievement factor than single employees ($p = 0.036$). This

aligns earlier research, demonstrating that marriage often makes people more motivated because they want to earn more and move forward in their career to care for their family (Gorman, 2000; Judge et al., 2006). Many married individuals are more worried about keeping their job and moving up, which increases their ambition to succeed (Azim et al., 2013; Mocheche, 2018). Single employees tend to value personal development or moving ahead in their careers, and that may explain why their achievement motivation score is lower than that of married employees (Huffman et al., 2014). So, being married seems to impact motivation, since the responsibilities of marriage lead to increased motivation at work. No other factors show significant differences.

No Significant Differences by Location, Seniority, or Job Position

The study also found that urban-rural location, seniority, and job position did not produce significant differences in motivation levels (all $p > 0.05$). This indicates that job experiences in Pahang's LG are similar in most places, probably because of identical public service structures. This observation is similar to Buelens and Van den Broeck (2007), who found that motivation factors stay consistent in centralized and bureaucratic public administration.

5.2.3 RQ3: Underlying Causes of Identified Demographic Differences

5.2.3.1 Underlying Causes of Gender Differences

It is important to understand why motivation levels differ for men and women at work to make things fair and effective. The findings from the interviews showed that a total of 18 themes emerged from the six motivation factors. While many of these themes overlap, grouping them together reveals six main factors that explain the gender differences in the study. The six main causes are typically classified into two main groups. The first group is about a workplace culture where men are more often in environments that directly help them succeed (points 1, 2 and 3). The second group is about the extra challenges that women encounter (points 4, 5 and 6). As a result of these obstacles, many women are not fully motivated, even if the opportunities appear the same for all. Overall, the results suggest that gender differences in this research are influenced by wider cultural

and organizational factors, not only by individual choices. Noticing these main reasons is the initial step to creating an inclusive and inspiring workplace for everyone. The six main causes of gender differences as below:

1. Male-Friendly Workplace Policy

In many workplaces, policies that look equal on paper often work better for male employees. Acker's (1990) theory of gendered organizations explains that many office systems are built around an "ideal worker", which mean someone always available, who can stay late, travel for work, and has no family responsibilities. These characteristics are more typical of men, mainly those who do not look after others. Because of this, men generally believe that their job requirements fit well with their skills and habits that make them more motivated. Ng and Sears (2020) discovered that public organizations often recognize traits such as assertiveness and being present all the time which are often associated with men. Ely and Meyerson (2000) also discovered that being noticed at the office is frequently taken as a sign of commitment, and this is more helpful for men than for women. Even policies like flexible work are not truly equal in practice. Chung and van der Horst (2018) discovered that having flexible work hours gives men a good reputation, but women are judged to be less focused. When everyday rules match one group's strengths more than another's, motivation is naturally higher for that group. In this case, male employees are more likely to be encouraged by the way workplaces are structured.

The interviews clearly show that male employees are more motivated by workplace policies because those policies fit their life context better. Int-G, a senior woman officer explained: *"Women feel restricted by company policies that demand long working hours or travel... They have to manage family duties, and these policies don't take into account the burden of additional family responsibilities"*. (Theme 3.2: Policy Bias). Employees are motivated at work when they feel their personal goals are represented in what they do. In this situation, men are usually more motivated because the policies, incentives, and goals are closer to their usual habits and career aims. The system makes it possible for people to work long hours, be seen and advance quickly, and all are favoured by men, especially those without caregiving roles. Int-J added: *"Women often feel excluded from policy*

creation, which makes it hard to support policies that don't seem designed with their needs in mind". (Theme 3.3: Culture & Power). When policies are made by male-dominated leadership and based on male career paths, they speak more clearly to men. This leads naturally to gaining motivational benefits.

Int-I pointed out: *"Policies often reflect male leadership, which may unintentionally prioritize their needs... Men are more likely to benefit from these policies because they align with their goals of upward mobility".* (Theme 3.2: Policy Bias). Employees are encouraged when they see the rules as a way to succeed in their jobs. For men, that link is often clearer, but for women with family duties, the system may not fit well or may even be discouraging. Int-B, a male officer, confirmed this: *"Men view company policies as a way to climb the career ladder... They are more motivated by policies that promise career growth, bonuses, and leadership roles".* (Theme 3.3: Culture & Power). This is also shown by the fact that how workers behave is judged and rewarded differently depending on their gender. Although flexibility is possible, men are still praised, but women are often criticized for it. Finally, Int-H noted: *"Women employee, especially single, often find company policies irrelevant to their needs... Men are more motivated by them because they see policies as a path to success, but I don't feel that need the same way".* (Theme 3.4: Psychology & Role). That's why men in this study reported higher motivation, because the structure of the workplace better fits their life situations and rewards their career efforts more directly.

2. Exclusion From Informal Networks

In many government offices, motivation at work is closely linked to belonging and connection. A key factor behind men's motivation is their regular participation in informal social groups that greatly affect their careers. These networks are not officially created, but people form them during after-work gatherings or everyday talks. Men tend to form larger, goal-driven circles, while women usually build smaller, more personal ones (Ibarra, 1992). For this reason, women might not be included in important talks about their careers or company matters. Smith-Lovin and McPherson (1993) discovered that being part of male-dominated groups often means women are less likely to find out about useful opportunities and information. Being left out tends to make them less motivated.

McDonald (2011) explained that if a woman feels excluded at work, she is likely to feel unhappy and look for another opportunity. Even if policies say everyone is equal, the reality is that hidden social ties still shape who moves forward. Georgiadou and Syed (2021) found that this is especially common in Asian firms, where male bonding controls access to influence. Herzberg believed that having good relationships at work is important, and if people sense isolation, their job satisfaction will fall, no matter how much they enjoy the work.

Interviews indicate that informal networks encourage men to stay motivated, while women usually feel excluded. With this kind of access, men feel more noticeable and linked to key decision-makers which boosts their chances of moving up in their careers. Int-D admitted that there is a simple way men build friendships in the workplace: *"If it comes to men, they will invite you... If you have time... Just join in, no problem"*. (Theme 1.2: Friendliness). Such daily gestures, no matter how little, help build trust and familiarity that eventually turn into support at work. Int-C noted an interesting habit: *"Usually when having lunch, men will pay for meals together, but women eat together but pay separately"*. (Theme 1.2: Friendliness). This routine helps men feel closer to each other which strengthens their sense of being part of a group. Although these differences are minor, they point to men bonding more closely which can give them more influence and benefits at work.

Int-G explained that if someone is excluded, it will cause the person to lose motivation: *"Once you alienate (ostracize) someone, she will become demotivated"*. She continued: *"They'll [women] lose interest, feel reluctant, and avoid tasks"*. (Theme 1.3: Inclusion). She explains that social exclusion can reduce a person's motivation, even if it is not done with harmful intentions. She also pointed out that women working with mostly male leaders often feel cut off which reduces their level of participation and enthusiasm. Being absent from this informal social, mean woman cannot take advantage of opportunities, guidance and recognition. By comparison, men generally feel included, valued and encouraged because their relationships offer them emotional and professional help. In some government situations, it is more important who you know than what you do. These networks work as silent steps for people advancing, but not all can benefit from them. Because women are less involved in these informal talks, they can end up feeling invisible or hesitant to lead. This demonstrates that social inclusion is a key,

though invisible, part of workplace motivation and it explains why men get more benefits from it today.

3. Limited Advancement Opportunities

Even though many organizations promote equality, women still face hidden barriers when trying to move into leadership, especially in government jobs. Lyness et al., (2000) found that women are often blocked by a “glass ceiling.” They may enter with the same qualifications as men but are judged differently, especially on unclear things like “cultural fit,” or excluded from key networks. Eagly and Carli (2007) expanded this idea by describing a “labyrinth” instead of a single ceiling. They found that women regularly encounter various small, unseen difficulties, including being judged unfairly, not being chosen for key assignments or required to lead in manners that don’t reflect their true selves. These difficulties are also reinforced by bias in how people imagine leaders. Acker (1990) argued that most organizations were built around a male idea of the “ideal worker” always available, aggressive, and career-focused. As a result, women with family responsibilities find it more difficult to be recognized as leaders. The report from McKinsey & Company (2022) indicates that there are now more women at the mid-levels, but few reach the top. Long-term issues like burnout, poor work-life balance, and lack of support continue to push them away from leadership, not because they are less capable, but because the system makes the path much harder.

The interview responses strongly reflect what past research has said about the hidden challenges women face in moving into leadership roles. While many women hold jobs in the public sector, most leadership posts are filled by men, as several participants pointed out in their organizations. As Int-H pointed out: *“In the management and professional levels, there are mostly men, and in support roles there are many women”*. (Theme 4.2: Career Barriers). Yet, there are still barriers for women in public service that prevent them from advancing, despite the rules being fair. These obstacles may be found in the system itself, rather than in the written policies. It reveals that although women are well represented in the workforce, they often do not climb into leadership positions as quickly as men. Int-G said that many new female workers with new ideas are often disregarded and not supported when they try to share their thoughts. She said: *“If you’re new and*

have ideas, some older leaders don't want to hear it... And if you make a mistake, they scold you but don't guide you". (Theme 4.2: Career Barriers). Women tend to face greater criticism and have less opportunity to lead which delays their chances for promotion. Women's success is often perceived as unusual, so they have to keep demonstrating their skills repeatedly. This continuous stress reduces motivation and encourages people to back away from wanting to lead. As a result, women do not experience the same encouragement or guidance as men which slows their growth and prevents them from taking on important roles. Another participant, Int-I, described how women are often not trusted with important tasks, which then becomes a reason to say they're not ready for bigger roles: *"When male bosses don't trust women's ability, it leads to them getting only simple tasks. Then they get blamed for not being ready for bigger roles".* (Theme 4.3: Workplace Culture). These problems are particularly difficult to handle in public offices that rely on seniority and systematic reviews. This cycle of low expectations and few chances stop many from learning what they require to advance.

Int-B said that opportunities for advancement such as working on special projects or going abroad for training, often go to men, particularly those who do not have family duties. He said: *"Men climb faster here. Policies like overseas training or big assignments, which are often keyways to promotion and leadership, usually go to men, especially those without families".* (Theme 4.1: Traditional Gender Roles). Most of the time, putting forth effort to promote oneself, always being available and taking risks is recognized, characteristics that men usually have, especially if they are not caregivers. Many view these chances as paths to leadership, but not everyone gets the same opportunities. Int-F explained that the workplace tends to give tasks instead of helping people develop. She explained: *"In our system, it's not about teaching... Bosses tell you to do something, and if you make a mistake, they blame you... But they don't mentor you".* (Theme 4.2: Career Barriers). Although many women join the government services, if they do not receive enough support, recognition or equal opportunities, many will either leave or remain at a middle level. It's not a skill gap, but the problem is that women's leadership abilities are not fully acknowledged or backed by the system. These persistent barriers make it harder for women to stay motivated, even when they are qualified and committed to grow.

4. Work-Family Conflict

Work-family conflict occurs when a person's job and family duties are in conflict, making it hard to do well in either role. Women feel this problem more strongly, mainly in traditional settings, as they are still required to handle most housework. Greenhaus and Beutell (1985) discovered that, even as full-time workers, women are typically the main caregivers at home. Judge et al. (2006) claimed that marriage often leads men to concentrate more on their work, as they feel they must provide for their family which can raise their motivation. Yet, for women, marriage often makes their jobs more tiring because they have to deal with chores and have less energy for their work. Gorman (2000) found that women have a much tougher time than men when trying to balance their jobs and family that can reduce their focus and involvement at work. Even when their positions are the same, women in public service jobs often have less motivation because they are busy at home and exhausted mentally (CDC, 2020). When expectations and support are not the same, men often keep their energy and dedication up at work, but women might feel stressed and unmotivated, despite having the same skills.

The interviews illustrate that work-family conflict still plays a role in shaping motivation, and this tends to benefit men. Several participants explained that women often have to deal with more housework which can make it tough for them to be fully focused and motivated at work. Int-I pointed out: *"Before and after work, women cook and care for kids... But men come to work fresh"*. (Theme 4.1: Traditional Gender Roles). It highlights that women usually begin work already tired, while men are often ready to focus and do well because they have fewer household responsibilities. Similarly, Int-C stated: *"If the husband doesn't help, women must arrange school pick-up, meals, and almost everything... It's draining"*. (Theme 4.1: Traditional Gender Roles). As a result of their extra household duties, women feel tired and are unable to give their full attention to work. As the days go by, this constant exhaustion may make them less interested and motivated. For women, especially in traditional families, motivation is harder to maintain because of constant physical and emotional strain. Even with strong performance, women still find themselves doing too many things which divides their attention away from their jobs. The extra tasks at home take away women's energy for work and reduce their daily motivation.

By contrast, male employees appear to be more motivated because of the clear social expectation to provide for the family. Int-B explained: *“Men have to work harder... Because they are the one who has to provide for the children, the school fees, everything”*. (Theme 6.1). The role of a provider inspires men to stay committed to what they need to do at work. Int-F observed: *“Even when both husband-and-wife work, usually it’s still the woman who handles most of the family matters”*. (Theme 4.1: Traditional Gender Roles). This uneven division of domestic responsibilities not only impacts women’s daily stamina but also contributes to a sense of being unsupported, which affects their workplace morale, and they may gradually lose energy, focus and motivation at work. Int-G added: *“Women don’t get time to recharge... Not even on weekends when tasks keep them busy, while men can usually relax... It’s hard to stay sharp at work in that condition”*. (Theme 4.1: Traditional Gender Roles). In sum, this suggests that men are motivated partly due to their roles which help them prioritize work, whereas women are responsible for both work and family, usually without much assistance. There might be flexible policies, but they are not enough when the true issue is that roles are not equal at home.

5. Lack of Mentorship and Supervisor Support

Unlike the organizational issues discussed in Factor 3, this section looks at how employees’ daily interaction with bosses and the lack of mentors affects their motivation and sense of belonging at work. Support and guidance from supervisors can strongly affect employee motivation. However, women often receive less mentorship at work, which lowers their confidence and makes it harder to stay motivated. Mcilongo and Strydom (2021) found that in the South African public sector, women struggle to stay engaged because they lack strong mentoring relationships. In many organizations, men receive more feedback, encouragement, and support from senior colleagues, while women are often left out. Even when women do get mentors, Ragins and Cotton (1999) noted that the support is often weaker or less meaningful, making them feel less valued. In some cases, senior women also avoid mentoring younger women to protect their own status, a behavior known as the “Queen Bee” effect (Derks et al., 2016). This creates a culture where younger women feel isolated and discouraged. Another issue is

“homophily,” the tendency to mentor people who are similar, usually in gender and background (Ragins, 1999). Because most senior staff are men, male employees naturally receive more informal guidance. These patterns make men feel more included, supported, and motivated, while women are often left to figure things out alone, which can reduce their drive and sense of belonging.

The interviews reflect this same pattern, as many participants mentioned that not having help from supervisors makes them feel cut off and less motivated. Several participants noticed that trust and encouragement are not always shared equally. Int-F explained: *“If male bosses don’t trust women’s abilities, women may feel unappreciated and avoid taking on new tasks”*. (Theme 4.3: Workplace Culture). A lot of women might hold back when it comes to sharing their ideas or taking on tough jobs, as they think their work would go unnoticed. This internal hesitation, caused by repeated exclusion, slowly lowers self-confidence. Being mentored can greatly increase employees’ desire to do well at work. If employees are acknowledged, assisted and advised, they tend to keep their motivation and commitment. As time goes on, not getting the support they deserve can lower the women’s motivation, although they are equally capable. Since there is not enough trust, women are rarely offered new opportunities which makes them feel less involved at work. Int-H added: *“Once you [as supervisor] isolate someone [women], she will indeed get demotivated”*. (Theme 2.1: Supervisor Feedback). When women are rarely included in team discussions or given feedback, it may hint that they are not included as equals. Women frequently believe they should try harder to get noticed, but they are not offered the same level of support. The presence of this silent bias makes them feel lonely and not sure where they belong. Being left out of work discussions and informal mentoring sessions can make some women lose their motivation.

Int-A, a male officer, also agreed that gender influences how staff members get informal support: *“If the supervisor is a man and the staff is also a man... Of course, a man understands a man... It’s more easy”*. (Theme 2.3: Gender Bias). Due to these dynamics, males gain more confidence and attention, whereas women pull away from trying to achieve their ambitions because they do not receive enough support. In many public organizations, men benefit more because mentorship happens informally and mostly between people with similar backgrounds. Therefore, men receive more advice, opinions and support which

helps them feel more confident and want to do better. These same-gender connections often make it easier for male staff to get help and advice, even without asking. Meanwhile, Int-G shared women's efforts are only recognized and appreciated if they match the standards set by men: *"Women's work is often not seen or not valued unless it follows male ways of doing things"*. (Theme 4.3: Workplace Culture). These expectations limit different approaches to work and also cause women to feel emotional stress from the need to match expectations. Being expected to act like men to gain recognition also adds to emotional fatigue. A lack of continuous support and acknowledgment can make women less motivated, not because of their skills, but because they are alone in facing the challenge.

6. Traditional Gender Expectations

While Factor 4 (Work-Family Conflict) looks at the daily impact of gendered roles, this part of the discussion explores the cultural and social norms that influence men and women differently in their work and motivation. In many public organizations, motivation at work is still strongly shaped by traditional gender roles. Their duties are rooted in the belief that men are supposed to work, and women are supposed to look after the house. According to social role theory, such ideas are passed down through culture and past experiences (Eagly & Wood, 1999). Gelfand et al. (2007) found that around the world, people often link men with leadership and women with support roles. These beliefs affect how workers are treated and what is expected of them, even when policies look fair on paper. Stamarski and Son Hing (2015) showed that important tasks and promotions are still more often given to men, while women are left in less visible or lower-status roles. Cislighi and Heise (2020) also noted that some policies that seem to help women, like flexible hours, can actually lower motivation by reinforcing the idea that women should prioritize family over work. These hidden pressures often reduce women's energy and motivation because they are expected to manage both home and office, while men are supported in focusing on work alone. In this way, traditional gender roles continue to create a workplace where men are more likely to stay motivated.

It is obvious from the interviews that traditional ideas about gender are still affecting motivation. Many respondents explained that men feel more motivated at work since they are usually expected to be the main breadwinners in their families. Int-C said: *"The man is the head of the family, the source of income... That's why I feel male employees are more motivated... They need to work harder and be tougher in that situation"*. (Theme 2.4: Gender Roles). Traditional ideas about gender still shape how people experience motivation at work. Since it is expected for men to succeed financially, they tend to work harder and are usually praised for doing so. This shows how social expectations push men to stay focused on their jobs, especially in public roles that provide steady income. On the other hand, women are expected to split their time and energy between the office and home.

Int-F noted: *"Even when both husband-and-wife work, it's usually the woman who handles most of the family matters"*. (Theme 4.1: Traditional Gender Roles). Usually, women are expected to handle their jobs as well as their family roles, often without much help or recognition. As a result of their double duty, they can lose both physical and emotional energy and this makes them less driven, even if they are very dedicated. Such pressures take away women's ability to remain motivated and concentrated at their jobs. Int-H explained that these roles can be very emotionally demanding: *"Women are tired, both from home and from office... While men can just focus on their jobs"*. (Theme 4.1: Traditional Gender Roles). It is possible for seemingly fair policies to keep up old gender roles, like allowing mothers more flexibility than fathers. This imbalance leads to daily fatigue and makes it hard for women to remain motivated. Even if family matters are not present, cultural norms can still influence someone's motivation. Int-E said, *"I [as women] don't have anyone depending on me... But I feel like my success isn't celebrated the same way"*. (Theme 6.2: Family Sharing). In addition, women who don't fit the expected role such as those who are single, might be ignored or criticized, but men are rarely challenged when they prioritize their jobs. If workplaces fail to address these hidden biases, motivation will always reflect these unfair expectations which means men are more likely to be supported and women to feel more tired.

5.2.3.2 Underlying Causes of Marital Status Differences

Discovering how marital status shapes work motivation can explain why employees in the public sector sometimes behave differently and have varying levels of commitment. In this study, clear differences between married and single employees were found under the 'Achievement' motivation factor. Three important themes were found in the interviews, highlighting the role of marital status in motivating people to achieve. Together, these themes point to two main reasons why married employees are generally more motivated than their single peers in this area:

1. Sense of Family Responsibilities

Recent studies show that married public-sector employees are usually more committed to their jobs, mostly because they want to support their families. It is particularly noticeable in cultures where family roles have a strong influence on people's identity. Yaqoob et al. (2023) found that family motivation helped paramedical staff in Pakistan perform better at work and stay in their jobs longer. The study also showed that this motivation made their work feel more meaningful, especially in cultures that value family highly. In China, Zhang et al. (2023) found that being married can change how work pressure affects job satisfaction. Married employees who had a heavy workload still felt more satisfied with their jobs, mainly because their spouses helped them emotionally and with daily tasks. This support reduced their stress. Dhanabhakym (2014) also found that married women working in India's public sector faced more stress when work and family demands clashed. However, when their families were involved and encouraging, it made both their career satisfaction and happiness increase.

It is clear from the interviews that married people often demonstrate greater motivation because they feel more responsible. Some participants pointed out that, once they had a family, their work became seen as something they do for both themselves and for the family. Int-C shared: *"When you're married... There's a lot of responsibility... You have to provide for the family"*. (Theme 6.1: Responsibilities). When people work for a family, instead of themselves, they can become more motivated because their work helps support and protect their

families. This obligation helps them value their job and stay dedicated, especially in public service since their employment depends on it. This explains how many people are encouraged to work so they can provide financial and emotional support for their loved ones. Although the pressure is greater, it makes the job seem more important. This was echoed by Int-B, who said: *"The husband must work until late at night if needed... Because it's his responsibility to provide for the family"*. (Theme 6.1: Responsibilities). On the other hand, being single can lead employees to concentrate more on their own aims, which can still be inspiring, though the demands of family life are usually felt more urgently by married staff.

Being willing to work extra hours is often considered important, mainly when others rely on our efforts. Int-D explained that long-term job stability is important to them to take care of their family and home: *"They [married] work in a permanent job to make sure the house, the kids, their school... Everything is secure"*. (Theme 6.1: Responsibilities). Long-term planning encourages motivation to continue, especially when facing tough situations at work. Since their effort influences their families, they are often more organized and think about the future. This kind of mindset, which focused on protection and planning, was mentioned as a strong motivator for staying committed and working consistently. A similar view was expressed by Int-I, who noted how the family structure influences motivation: *"If the wife doesn't work, the man has to give more... That becomes his motivation"*. (Theme 6.1: Responsibilities). Having more duties, though stressful, encourages people to stay dedicated and productive. With a clear purpose, they are able to push through challenges and wait for the best results. It was also noted that people focused their work on different aspects. Int-E pointed out: *"If you're single, you just take care of yourself... But those who are married are more organized... They know what time to pick up their children"*. (Theme 5.2: Work-Family Priorities). This difference shows that family duties can change how people arrange their jobs and other activities. It shows that those with family responsibilities tend to organize their time better and consider work as one part of their overall life. It seems that married employees tend to treat their jobs with more seriousness and plan their careers over the long term. Besides their own ambitions, they are motivated by the need to meet their duties towards others. As a result, employees usually feel more committed and do better work.

2. Pride from Family Recognition

Many public servants feel proud when their work achievements are celebrated at home. According to Greenhaus and Powell (2006), good experiences at work can improve family life, a concept known as work-family enrichment. When someone works in government, where their actions can affect the public, their job success is important for their family as well. Promotions, awards, or public recognition are often seen as a family success, not just an individual one. This idea connects with self-determination theory, which says that being recognized by loved ones meets deep emotional needs like feeling capable and connected. When families show pride, employees feel more motivated to do their jobs well (Menges et al., 2017). In some cultures, like those in South Asia, where family is very important, this feeling is especially strong. For example, Yaqoob et al. (2023) found that in cultures where family is very important, like in Pakistan, public health workers often feel more motivated during tough times when they know their families are proud of them. This pride helped them do better at work and gave them emotional energy to continue. Also, support from a spouse can turn personal achievement into shared motivation. According to Wayne et al. (2004), married employees often feel stronger and more focused at work because their family stands behind them, making the success feel bigger than just themselves.

The results from the interviews suggest that achievement makes someone feel good and also brings pride to their family, especially when they serve in public roles. Participants shared that being successful at work seems to benefit people's emotions at home, making them more motivated and reinforcing their identities with others. Int-F noted that married employees often become role models to their children through their work: *"When children see their mother or father in uniform, they feel proud"*. (Theme 6.2: Family Sharing). This visible pride in their children makes employees feel more invested in their jobs and helps them feel valued, reinforcing their sense of purpose and self-worth. Int-B explained that married staff enjoy additional emotional benefits since their families recognize what they do at work: *"Children of married employees sometimes ask about their parent's job or salary, and they feel proud that someone in their home, works in government"*. (Theme 6.2: Family Sharing). This sharing recognition makes employees feel that their efforts are significant both at work and in their home life. It was observed by

Int-D that being successful at work can result in family members becoming proud: *“When married staff return to their hometowns, their siblings or relatives often compliment their government work...It gives them a sense of pride”*. (Theme 6.2: Family Sharing). Being acknowledged in the family and community helps boost one’s emotions, especially when group identity is important in a society.

In contrast, Int-E pointed out that being single can mean that workers’ success goes unrecognized: *“Single employees who have no dependents may feel that even when they achieve something, it often goes unnoticed”*. (Theme 6.2: Family Sharing). Since they lack family support, single employees may not see their achievements as something to celebrate, which can result in less emotional encouragement. All of this indicates that family pride inspires married employees to perform well at work. Their achievements are not only personal but are recognized by their families and communities, thus the work they do feels more valuable and important.

5.3 Conclusions

This study examined how motivation at work affects job satisfaction among 505 employees of LG in Pahang, Malaysia, and also compared the results among different demographic groups, using a mixed-method approach. For RQ1, the results of the regression analysis indicate that extrinsic factors were much more strongly related (significantly) to job satisfaction than intrinsic ones. All five hygiene factors, (1) working conditions ($\beta = 0.365$), (2) peer relationships ($\beta = 0.251$), (3) supervisor relationships ($\beta = 0.109$), (4) monetary rewards ($\beta = 0.104$), and (5) Organization Policy ($\beta = 0.082$) were statistically significant ($p < 0.05$), while only one intrinsic motivator, (achievement) ($\beta = 0.101$, $p = 0.000$), showed a meaningful impact. The model showed that 87.9% of the changes in job satisfaction were explained by the data, demonstrating that LG employees in Pahang are more influenced (more sensitive) by extrinsic motivation than intrinsic motivation. In other words, things around them such as their working condition and how the communication happened, play a bigger role in keeping them satisfied at work than personal growth or recognition alone.

For RQ2, the findings suggest that gender and marital status are the only factors that affect motivation levels. The results show that male employees had higher motivation than female employees in five out of six factors: (1) achievement ($M = 4.12$ vs. 3.87), (2) monetary rewards ($M = 3.95$ vs. 3.61), (3) Organization Policy, (4) peer relationships, and (5) supervisor relationships, with all differences statistically significant ($p < 0.05$). This suggests that those groups (male and married employees) may benefit from better connections, help from supervisors/leaders, and recognition within the organization. It was also found that married employees scored higher than single employees in the achievement factor ($M = 4.09$ vs. 3.77 , $p = 0.036$), which suggests that taking care of a family and the wish to be successful motivate them to be more committed. There were no significant differences between group based on their job position, seniority, or location (urban vs. rural).

For RQ3, the qualitative interviews helped explained the key reasons behind these differences further (by gender and marital status). In the case of gender, six causes were found as follows: (1) male-friendly workplace policies, (2) exclusion from informal networks, (3) limited advancement opportunities, (4) work-family conflict, (5) lack of mentorship and supervisor support, and (6) traditional gender expectations. Such factors tended to alienate women (especially married women), making them feel unappreciated, undervalued, and not given a chance to grow, which eventually demotivated them in the workplace. In the meantime, male workers were enjoying workplace environments that affirmed their position in society as breadwinners, were encouraged more by their supervisors, and could access informal sources of support more easily. These results indicate that traditional gender expectation and structural barrier³³ still define the degree of motivation in the LG public sector. To overcome such inequalities, it is not only necessary to introduce fair policies, but also to transform internal organizational culture to embrace inclusion, equity in recognition and management support across the gender divide.

For marital status, there were two reasons why married people were more motivated (in achievement): (1) sense of family responsibilities, and (2) pride from family recognition. Workplace was not merely a site of career advancement, but

³³ Structural barriers mean organizational rules, hierarchies, or systems that unintentionally prevent equal access or opportunity (e.g. male-dominated promotion systems, lack of flexible policies)

also the way of gaining respect, stability and the family unit validation. Married people also found their meaning and motivation in performing the role of provider, and the success in work was considered as service to the family. Such a relationship between job performance and family identity established an emotional anchor that single employees were less likely to feel. The results imply that motivation in the workplace of collectivist cultures, such as Malaysia, is inseparably connected to family duties and societal expectations. The identification of these socio-cultural dimensions may assist in the making of more context-sensitive engagement strategies within public sector institutions such as the recognition of the family-oriented values and the emotional motivation generated by these values. In this regard, motivation is not only a product of job design or personal characteristics but also influenced by deep-rooted cultural norms, social systems and organizational dynamics.

Final Recapitulation

The three research objectives of this study were successfully achieved. It first identified the most important factors that influence job satisfaction, confirming that favourable working conditions, supportive relationships, and clear policies are among important drivers. Second, it confirmed that, although there were no significant differences across other demographic variables, motivation differs significantly by gender and marital status. Third, it revealed the underlying causes of these differences, such as gendered expectations, fewer career progression opportunities for women, and the importance of family pride among married employees. The findings clearly address the research questions and reflect the more complex perspective on motivation in Malaysia's LG public sector.

To summarize, the motivation of employees in Pahang's local governments is influenced more by external work factors and socio-cultural roles than by personal goals or achievements. This means that in addition to offering financial incentives, HR managers and policymakers must concentrate on establishing inclusive, fair, and supportive work environments. Designing more successful approaches to raise employee satisfaction, performance, and retention can be assisted by a deeper understanding of how motivation varies among demographic groups. Local governments may create a more motivated, well-rounded, and high-

performing employee by recognizing these unique local elements. This will enhance organizational capacity and performance as well as provide the public with more effective, higher-quality services.

5.4 Limitations

This study has a few limitations that should be considered. First, it focused only on LG employees in the state of Pahang. While the findings give useful information into motivation and job satisfaction in this specific area, they may not apply to other states in Malaysia or to other countries, where work culture, policies, and economic conditions could be different. Second, the study used a cross-sectional design, meaning the data was collected at a single point in time. This helps to identify relationships between motivation and job satisfaction when the study conducted, but it does not prove a long-term effect, as motivation is dynamic across time. Third, the qualitative part of the study also has limits. Interviews were only conducted within management (senior/supervisory-level), such as the mayor and department heads. While their opinions were important, they might not match what lower-level staff go through every day. Lastly, the study did not examine other aspects that may affect motivation, including personality traits, the way leaders act or changes within the organization. These could have offered deeper knowledge into what affects motivation and job satisfaction. Being aware of these limitations can explain the boundaries of the study and direct future studies to where improvement is needed.

5.5 Suggestions For Future Research

Future research should first consider including other Malaysian states or countries with similar conditions to see if the same trends appear elsewhere. Second, investigating motivation and satisfaction using long-term studies, like longitudinal or quasi-experimental designs can show how policies affect these factors before and after their introduction. Third, since this study showed clear differences between genders, it would be interesting to examine how mentoring, fair division of work, or anti-bias efforts can help increase motivation, especially among women. Fourth, it may be useful to explore how factors like leadership style,

personality, or work-life balance policies affect motivation as moderating variables. Finally, it would be valuable to study how digital applications, remote systems, and technology for communication affect employee motivation and satisfaction in public organizations. Since digitalisation is increasing in government work, it's necessary to consider the way this impacts motivation among older or less tech-savvy employees.

5.6 Policy Implications and Recommendations

The study found important points and may be suggested for policymakers and those working in HRs at the LG in Pahang. The findings shows that both types of motivation are important for employee satisfaction and commitment in Pahang's LG sector (even though extrinsic more significant). It was found that gender and being married strongly affected motivation and interviews revealed that organizational culture, fairness and work-family balance were the major themes. As a result of these findings, the following is suggested for policy action:

1. Improve Basic Work Conditions (Linked to hygiene factors)

Most participants agreed that secure, clean and well-supplied workplaces are very important. It was found that poor physical environments and late payment of wages tend to reduce motivation among employees. Thus, LGs should focus on having modern and comfortable facilities, paying salaries on time and distributing resources fairly.

2. Strengthen Fair HR Practices (Findings on promotion and trust issues)

The study found that perceived unfairness in promotions and task assignments lowered trust, especially among women and junior staff. HR departments should ensure there are clear and transparent actions for career advancement, transfers and performance evaluations to maintain fairness and raise trust within the organization.

3. Foster Recognition and Personal Growth (Aligned with motivators findings)

Interviews revealed that recognition, appreciation, and opportunities for skill development were major sources of job satisfaction. LGs should implement regular

feedback, recognise employees with awards and provide training to help staff feel motivated and advance in their careers.

4. Promote Equal Opportunities and Inclusive Culture (Addressing gender-based disparities)

The study identified that women experienced challenges including being led by men, not having enough mentors and being left out of informal groups. Targeted policies, aimed at bias awareness, mentoring younger female employees and conducting regular audits support can help create a more inclusive and supportive environment.

5. Support Work-Family Balance (Based on differences between married and single employees)

Married employees often have a higher drive to succeed because they feel more responsible and proud of their families. Introducing flexible working hours, generous parental leave, and family-involvement initiatives (e.g., Family Day) can reinforce these positive motivations while helping all staff balance personal and professional demands.

6. Use Employees Feedback for Policy Evaluation (Reflecting the need for continuous improvement)

Regular motivation surveys broken down by gender, marital status, age, and job role should be conducted to identify group-specific challenges and track the effectiveness of policies. Involving staff in policy discussions or decision-making processes can help them feel more connected to the organization and keep them motivated.

7. Suggest for Broader PayScale Reforms (Linked to salary and systemic limitations)

Since LGs do not control their pay scale, they must cooperate with higher levels of government (state and federal). Advocating for fair and competitive pay structures, especially for junior or underrepresented employees, will help address one of the most cited concerns in this study.

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Appendices

Appendix A: The Survey Using Google Form (in Malay)

Questions Responses **505** Settings



Section 1 of 3

KAJIAN PERBANDINGAN MOTIVASI KERJA BAGI KAKITANGAN PIHAK BERKUASA TEMPATAN (PBT) NEGERI PAHANG DI KAWASAN BANDAR DAN LUAR BANDAR

B *I* U  

Assalamualaikum W.B.T. & Salam Sejahtera,

Kepada para responden yang dihormati (Pegawai dan kakitangan Pihak Berkuasa Tempatan di Negeri Pahang),

Saya adalah pelajar pascasiswazah tahun akhir di Universiti Meiji, Jepun yang sedang mengikuti program Sarjana Polisi Awam. Saya kini sedang menjalankan kajian yang bertajuk "Kajian Perbandingan Motivasi Kerja bagi Kakitangan Pihak Berkuasa Tempatan (PBT) Negeri Pahang di Kawasan Bandar dan Luar Bandar".

Oleh itu, saya amat menghargai sumbangan tuan/puan dalam kajian ini dengan melengkapkan soal selidik berikut yang akan mengambil masa kira-kira 5 - 8 minit untuk diselesaikan. Kajian ini adalah sepenuhnya sukarela, tanpa nama dan maklum balas individu akan dirahsiakan dan hanya akan digunakan untuk tujuan akademik sahaja.

Kerjasama tuan/puan amat dihargai.

Mohd Noridzuan bin Jamil
7111235417
Meiji University
cn235417@meiji.ac.jp / mohdnoridzuan@gmail.com

Appendix B: The Sample of Questionnaires

QUESTIONNAIRE USED IN GOOGLE FORM

This information will be kept in the strictest confidence and used for statistical purposes only.

Section A: This section asks some general questions about you and your job.

Your organization.

City/District Council: _____

Are you? Please select one.

Female Male

Which of the following best describes your age? Please ✓ one.

16 – 20 21-25 26-30 31-35 36-40 41-45 46 and above

Which best describes your race? Please ✓ one.

Malay Chinese Indian Other

What is your marital status? Please ✓ one.

Single Married

What is your highest level of education completed? Please ✓ one.

PMR level SPM Level Diploma Degree Master's PhD

How long have you been at your organization? Please ✓ one.

Less than one year 1-5 years 6-10 years 11-15 years 16-20 years
more than 20 years

What is your department? Please ✓ one.

HR Finance Development Environment Health
Other _____

What is your current grade? Please ✓ one.

1-18 19-28 29-40 41-48 52-54 JUSA

Part B: Employee Motivation Survey

Please read this survey about employee motivation. Read each question carefully before responding, then circle the appropriate answer in the designated space. Please answer to the best of your ability and save any additional comments for the back page. Thank you for your help.

To understand what is most important to you, please read each statement and rank your agreement on a scale from 1-5, where 1= Strongly Disagree (SD), 2 = Disagree (D), 3=Neutral, 4=Agree (A), and 5=Strongly Agree (SA).

Factor	Questions
<i>Intrinsic</i>	
Achievement	1. I am proud to work in this company because it recognizes my achievements 2. I feel satisfied with my job because it gives me a feeling of accomplishment 3. I feel I have contributed to my company in a positive manner
Advancement	4. I will choose career advancement rather than monetary incentives 5. My job allows me to learn new skills for career advancement
Work Itself	6. My work is thrilling, and I have a lot of variety in the tasks that I do 7. I am empowered enough to do my job 8. My job is challenging and exciting
Recognition	9. I feel appreciated when I achieve or complete a task 10. My manager always thanks me for a job well done 11. I receive adequate recognition for doing my job well
Growth	12. I am proud to work in my company because I feel I have grown as a person 13. My job allows me to grow and develop as a person 14. My job allows me to improve my experience, skills, and performance
<i>Extrinsic</i>	
Company Policy	15. The attitude of the administration is very accommodative in my company 16. I am proud to work for this company because the company policy is favorable for its workers 17. I completely understand the mission of my company
Relationship with Peers	18. It is easy to get along with my colleagues 19. My colleagues are helpful and friendly 20. Colleagues are important to me
Relationship with Supervisor	21. I feel my performance has improved because of the support from my supervisor 22. I feel satisfied at work because of my relationship with my supervisor 23. My supervisors are strong and trustworthy leaders
Money	24. I am encouraged to work harder because of my salary 25. I believe my salary is fair
Working Conditions	26. I feel satisfied because of the comfort I am provided at work 27. I am proud to work for my company because of the pleasant working conditions
<i>Other</i>	
Job Satisfaction	28. I am satisfied with my job 29. I am happy with the way my colleagues and superiors treat me 30. I am satisfied with what I achieve at work 31. I feel good at work

Appendix C: The Interview Guide

Interview Guide **Work Motivation and Job Satisfaction in Local Government Employees**

Introduction to the Interview:

- Introduction to the purpose of the study.
- Explanation of how the interview will be conducted.
- Reassurance of confidentiality and voluntary participation.
- Request for consent to record the interview for note-taking purposes.

Section 1: Background Information (Optional)

1. Can you describe your role as a personnel supervisor in the local government? What are your main duties and responsibilities?

Section 2: Motivation and Job Satisfaction

2. What is your overall view of work motivation among local government employees in your current situation?
3. In your opinion, why do some local government employees have low work motivation, and what steps can be taken to improve both their work motivation and job satisfaction?

Based on the study's findings, which identified that factors like working conditions, relationships with peers, relationships with supervisors, monetary rewards, and company policies significantly impact job satisfaction, I would like to get your perspective on these areas:

4. The study found a strong link between the factors mentioned above and job satisfaction. From your experience, what do you think explains these relationships? Why?
 - i. **Work Condition (most important factor)**
 - ii. Relationship with Peers
 - iii. Relationship with Supervisor
 - iv. Monetary Rewards
 - v. Achievement
 - vi. Company Policy (least important factor)

Section 3: Understanding the Impact of Demographics on Motivation

The study explored how demographic factors such as gender, marital status, job position, and location (urban vs. rural) affect motivation. I would like to hear your thoughts on the findings:

5. Gender: The study found that male employees reported higher motivation in these factors:
 - i. work conditions
 - ii. relationships with peers
 - iii. relationships with supervisors
 - iv. monetary rewards
 - v. achievement.Why do you think male employees might feel more motivated by these factors?

6. How do you think we can design motivational strategies that cater to the needs of both male and female employees?
7. Marital Status: The study found that married employees reported higher satisfaction with their **achievements** compared to single employees. Why do you think marital status influences job satisfaction in this way?
8. How can motivational strategies in achievement be tailored to address the different needs of married and single employees?
9. Location (Urban vs. Rural): The study found no significant difference in motivation between urban and rural employees. Why do you think motivation levels are similar for both groups?
10. Seniority and Job Position: The study found no significant difference in motivation across different levels of seniority or job positions. Why do you think motivation doesn't vary based on these factors?

Section 4: Interpretation of Results and Factors Leading to These Outcomes

11. The study suggests that external factors (like working conditions, relationships, and monetary rewards) seem to have a stronger influence on motivation compared to internal factors (like achievement). Why do you think external factors are more significant in motivating employees?
12. Aside from the factors mentioned above, are there any other elements you believe should be considered to improve work motivation and job satisfaction?

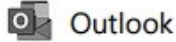
Section 5: Suggestions for Improvement

13. Based on your experience and the results from this study, what strategies would you suggest to improve job satisfaction and motivation among local government employees?
14. Why do you think these strategies would be effective?

Closing:

- Thank you for your time and valuable insights.
- Please feel free to add any further thoughts or observations you think are relevant but were not covered during this interview.

Appendix D: The Final Consent From Pahang State Government (in Malay)



Re: Fwd: MEMOHON KEBENARAN BAGI MENJALANKAN SOAL SELIDIK KAJIAN SARJANA DI PIHAK BERKUASA TEMPATAN NEGERI PAHANG

From Husnalrita binti Yussof <husnalrita@pahang.gov.my>

Date Fri 02/08/2024 11:19

To JAMIL MOHD NORIDZUAN <cn235417@meiji.ac.jp>

Cc salleh.adnan <salleh.adnan@pahang.gov.my>

Salam.

Bahagian Kerajaan Tempatan tiada halangan untuk pihak tuan menjalankan soal selidik kajian Sarjana di Pihak Berkuasa Tempatan di Negeri Pahang.

2. Walau bagaimanapun, maklumat yang dikutip adalah bertujuan akademik sahaja. Segala maklumat yang dikumpulkan adalah dirahsiakan.

Sekian, terima kasih.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menjalankan amanah,

HUSNALRITA BINTI YUSSOF
Ketua Penolong Setiausaha
Unit Pemantauan Operasi & Kewangan
Bahagian Kerajaan Tempatan
Pejabat Setiausaha Kerajaan Pahang
Wisma Sri Pahang
25503, Kuantan, Pahang
No Tel : 09-5156330
No Faks : 09-5161544

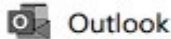
<http://www.pahang.gov.my>

...

GO GREEN-PAPERLESS| Sila pertimbangkan alam sekitar sebelum mencetak e-mel ini.

Peringatan Keselamatan / Kerahsiaan : E-mel ini termasuk apa-apa fail lampiran yang dihantar bersama adalah rahsia dan bertujuan semata-mata untuk kegunaan individu yang dialamatkan sahaja. Jika anda bukan penerima yang dinamakan, sila ambil perhatian bahawa segala bentuk tindakan untuk menyebarkan, mengedarkan atau menyalin e-mel ini adalah dilarang sama sekali. Sila beritahu penghantar dengan kadar segera melalui e-mel jika anda telah menerima e-mel ini secara tidak disengajakan serta mengambil tindakan dengan memadamkan atau menghapuskan e-mel asal tersebut termasuk fail-fail lampiran.

Appendix E: The Invitation Email for Interview (in Malay)



MEMOHON MENJALANKAN TEMU BUAL BERSAMA YDP MAJLIS DAERAH CAMERON HIGHLANDS

From JAMIL MOHD NORIDZUAN <cn235417@meiji.ac.jp>

Date Thu 06/03/2025 01:05

To ydp_mdch@mdcameron.gov.my <ydp_mdch@mdcameron.gov.my>

Bcc Mohd Noridzuan Jamil <mohdnoridzuan@gmail.com>

1 attachment (93 KB)

Final_Interview Guide for Personnel Supervisor (Malay).pdf;

Assalamualaikum WBT,

Dengan hormatnya saya merujuk kepada perkara di atas dan perbincangan bersama tuan pada 5 Mac 2025 adalah berkaitan.

2. Saya Mohd Noridzuan bin Jamil, seorang pelajar di Meiji University, Jepun sedang menjalankan kajian untuk memenuhi keperluan program Sarjana Polisi Awam saya yang bertajuk "**Motivasi Pekerja di Pihak Berkuasa Tempatan Pahang: Analisis Perbezaan Demografi**". Kajian ini bertujuan untuk memahami faktor-faktor yang mempengaruhi motivasi kerja dan kepuasan kerja dalam kalangan pekerja kerajaan tempatan di negeri Pahang.
3. Sebagai sebahagian daripada kajian ini, saya ingin memohon kebenaran untuk menjalankan sesi temu bual bersama tuan bagi mendapatkan pandangan serta maklumat yang berkaitan. Temu bual ini akan dijalankan secara individu dan akan merangkumi soalan-soalan mengenai faktor-faktor motivasi dan kepuasan kerja dalam konteks kerajaan tempatan.
4. Berikut adalah ringkasan mengenai proses temu bual:
 - i. **Proses Temu Bual:** Temu bual akan dijalankan secara dalam talian (melalui applikasi Zoom) mengikut keselesaan pihak yang ditemu bual (ditetapkan oleh pihak tuan). Setiap temu bual dijangka akan mengambil masa kira-kira 30-40 minit.
 - ii. **Tujuan Kajian:** Kajian ini bertujuan untuk mengkaji faktor motivasi kerja dalam kalangan pekerja kerajaan tempatan serta menganalisis perbezaan berdasarkan demografi seperti lokasi, jantina, status perkahwinan, kekananan, dan kedudukan jawatan.
5. Saya amat menghargai pertimbangan dan sokongan yang diberikan. Sebagai jaminan, semua maklumat yang dikumpulkan akan dijaga kerahsiaan dan hanya digunakan untuk tujuan akademik semata-mata. Bersama-sama ini saya sertakan 'Panduan Temu Bual' bagi panduan pihak tuan jua.

6. Jika pihak tuan memerlukan maklumat lanjut, saya sedia untuk memberikan penjelasan tambahan. Saya menantikan maklum balas positif daripada pihak tuan. Terima kasih atas perhatian dan sokongan yang diberikan.

Sekian,
Yang Benar,

MOHD NORIDZUAN BIN JAMIL

7111235417

Meiji University

cn235417@meiji.ac.jp / mohdnoridzuan@gmail.com

Submitted to the Faculty of the Graduate School of Governance Studies
as a Partial Fulfillment of Master's Degree of Public Policy,
Meiji University, Japan
2025

Title of Thesis: **Local Knowledge, Experience, and Flood
Resilience in Barangay Tumana, Marikina
City, Philippines**

A Qualitative Analysis Using the Protective
Action Decision-Making (PADM) Model and
Whole-of-Society (WoS) Approach

Governance Program,
The Graduate School of Governance Studies

Name of Supervisor: Yoshiki Kobayashi, PhD.

Name of Author: Patricia Blanco Reyes

Completion in: September 2025

ABSTRACT

PURPOSE – The study explores how local knowledge and experience shape protective behavior against flooding and how these can be integrated into flood resilience policies through participatory governance. It asks the central question: “*How can local knowledge and collective experience inform protective behavior and formal policies against flooding?*”.

METHODOLOGY – The study employed a qualitative design with key informant interviews (KIIs), focus group discussions (FGDs), and field observations. Transcripts were analyzed using Braun & Clarke’s (2013) thematic process guided by the *Protective Action Decision-Making* (PADM) model and the *Whole-of-Society* (WoS) approach.

FINDINGS – In Barangay Tumana, protective behaviors and decision-making during floods are shaped by local knowledge and experience. Positive ones encourage evacuation, while traumatic ones lead to alternative, improvised strategies. These protective actions, guided by lived experiences, were essential inputs in developing and legitimizing localized, responsive, and appropriate solutions for community-based flood resilience.

ORIGINALITY – While previous studies explored flood resilience and behavioral responses separately, often using quantitative approaches, this work is the first to integrate these areas using an interdisciplinary dual-lens framework. This study’s novelty lies in its incorporation of behavioral insights with policy analysis to demonstrate how local perspectives both shape protective behaviors and refine formal institutional strategies for flood resilience.

LIMITATIONS – The study focused on local knowledge and is limited by self-reported, anecdotal evidence, lack of disaggregated data, and access constraints. While triangulation and secondary sources helped mitigate these, variations in protective behavior across demographic groups remain underexplored.

KEYWORDS: Flood Resilience, Protective Behavior, Local Knowledge, Protective Action Decision-Making model, Whole-of-Society

TABLE OF CONTENTS

I.	Chapter One: Introduction	1
1.1	Chapter Overview	1
1.2	Disasters in the Global Arena	1
1.3	Flooding in the ASEAN Region	4
1.4	The Philippines' Susceptibility to Flooding	4
1.5	Actions Taken by State Actors to Address Flooding	6
1.6	Problem Statement	11
1.7	Research Purpose	12
1.8	Research Objectives and Central Question	12
1.9	Significance of the Study	13
1.10	Originality	14
1.11	Organization of the Study	14
	Chapter Summary	15
II.	Chapter Two: Background	15
2.1	Chapter Overview	16
2.2	Barangay Tumana's Risk Profile	16
2.3	Site Topography and Geography	19
2.4	Politico-Administrative History of Barangay Tumana	21
2.5	Residents of Barangay Tumana	22
2.6	Climate Projections and Future Risks for Barangay Tumana	25
	Chapter Summary	26
III.	Chapter Three: Literature Review	27
3.1	Chapter Overview	27
3.2	The Limitations of Existing DRM Frameworks	27
3.3	Risk Communication and Disaster Governance	29
3.4	Lived Experience and Collective Memory as Local Disaster Knowledge	29
3.5	The Value of Informal Social Networks in Times of Disasters	30
3.6	Local Insights and the Cost of Its Exclusion in DRM Policy	31
3.7	Summary of Gaps in Literature	32
	Chapter Summary	33
IV.	Chapter Four: Methodology	34
4.1	Chapter Overview	34
4.2	Research Design	34
4.3	Study Area	36
4.4	Participants and Sampling	37
4.5	Data Collection Procedure and Instruments	37
4.6	Ethical Considerations	41
4.7	Data Analysis and Theoretical Frameworks	42
	Chapter Summary	50
V.	Chapter Five: Analysis and Findings	51
5.1	Chapter Overview	51
5.2	Study Context	51

5.3 Persistence and Attachment to Place: Why Tumanians Choose to Stay	51
5.4 Local Knowledge and Experience and Individual Protective Behavior: Behavioral Analysis using PADM	56
5.5 Local Knowledge and Experience in Policy and Governance: Policy Analysis using WoS	78
5.6 Summary of Key Findings	85
Chapter Summary	89
VI. Chapter Six: Discussion and Policy Implications	90
6.1 Chapter Overview	90
6.2 The Role of Local Knowledge and Experience in Community-Based Flood Resilience	90
6.3 Moving Toward a Localized and Responsive Flood Resilience Policymaking	92
6.4 Policy Co-Creation in Flood Resilience through Participatory Governance	92
6.5 Practical and Policy Implications	95
Chapter Summary	97
VII. Chapter Seven: Conclusion and Recommendations for Further Studies	98
7.1 Chapter Overview	98
7.2 Conclusion	98
7.3 Recommendations for Further Studies	101
7.4 Study Limitations	102
Chapter Summary	103
VIII. References	104
IX. Annexes	
9.1 Annex A: Interview Guide	109
9.2 Annex B: FGD Guide	110
9.3 Annex C: Code Book	111
9.4 Annex D: Method for Analysis	115
9.5 Annex E: Themes Generated based on PADM and WoS and Descriptions: LK and CE on Flood and Protective Behavior	116
9.6 Annex F: Themes Generated based on PADM and WoS and Descriptions: Influence of LK and CE on Flood in Policy	117

LIST OF TABLES

Table 1. Record of Natural Hazards that Threaten Barangay Tumana	28
Table 2. The Economic and Human Costs of the Worst Floods Affecting Barangay Tumana, Marikina City, Philippines	21
Table 3. Projected Population and Gross Density of Top 5 Densest Barangays in Marikina City, 2022	22
Table 4. Summary Table of FGD Sessions and No. of Participants	39
Table 5. Factors that Influence Evaluation of Threat, Coping, and Protective Action	66
Table 6. Summary of Interactions of Factors with LK and CE to Determine Place of Refuge	74
Table 7. Themes Generated based on PADM and WoS with Descriptions: LK and CE in Flooding vis-à-vis Protective Behavior.....	87
Table 8. Themes Generated based on PADM and WoS with Descriptions: Influence of LK and CE on Flood Policy	88

LIST OF FIGURES

Figure 1. The Philippine National Disaster Risk Reduction and Management (NDRRM) Framework 2020 - 2030.....	7
Figure 2. Alarm System of Marikina City in the Flood Protocol	8
Figure 3. Barangay Tumana’s Street & Flood Hazard Map with Political Boundaries (2020)	16
Figure 4. Barangay Tumana’s Street & Flood Hazard Map (2025)	17
Figure 5. The Marikina River and the Larger River Network of Metro Manila	18
Figure 6. Barangay Tumana vis-à-vis the Marikina River	19
Figure 7. The Protective Action Decision-Making Model (Lindell & Perry, 2004 & 2012)	43
Figure 8. The Whole-of-Society Approach	45
Figure 9. Analytical Framework Linking the PADM (Behavioral Lens and the WoS Approach (Policy Lens)	46
Figure 10. PADM Phase I: Pre-Decisional Phase (Information Intake)	57
Figure 11. PADM Phase II: Cognitive Evaluation Phase	60
Figure 12. PADM Phase III: Protective Action Decision-Making	65
Figure 13. Flood Knowledge and Experience Influencing the Decision on the Place of Refuge.....	74
Figure 14. The City of Marikina’s Alarm System: Utilizing Auditory and Visual Cues to Trigger Behavioral Response	80
Figure 15. Marikina’s Iterative Process of Protocol Improvement through Experiential Consent	83
Figure 16. ‘Common-Sense Government’: Interaction of Strong Leadership and Political Will with Public Trust and Confidence	84

LIST OF ABBREVIATIONS

ADB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
CBDRM	Community-based Disaster Risk Management
CE	Collective Experience
CMP	Community Mortgage Program
CPDO	City Planning and Development Office
DRM	Disaster Risk Management
DRRM	Disaster Risk Reduction and Management
DRRMO	Disaster Risk Reduction and Management Office
EM-DAT	International Disaster Database
FGDs	Focus Group Discussions
ICS	Incident Command System
IEC	Information, Education, and Communication
IPCC	Intergovernmental Panel on Climate Change
KIIs	Key-Informant Interviews
LDRRMF	Local Disaster Risk Reduction and Management Fund
LGU	Local Government Units
LK	Local Knowledge
MaxQDA	Computer-Assisted Qualitative Data Analysis Software
NCR	National Capital Region
NDRRMC	National Disaster Risk Reduction and Management Council
NGO	Non-government Organization
PA	Public Address
PADM	Protective Action Decision-Making
PAGASA	Philippine Atmospheric, Geophysical, and Astronomical Services Administration
PH	Philippines
PIDS	Philippine Institute for Development Studies
PSA	Philippine Statistics Authority
PWD	People With Disabilities
RA	Republic Act
Rescue 161	Marikina City's DRRMO
SDGs	Sustainable Development Goals
SMS	Short Message Service
UN ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UNESCO	United Nations Educational, Scientific, and Cultural Organization
WHO	World Health Organization
WoS	Whole-of-Society

Chapter One: Introduction

1.1 Chapter Overview

This chapter begins with a discussion about the growing number of disasters and losses thereof that are experienced on a global scale. It then provides a rundown of commonly used terminologies and resilience frameworks in disaster governance and scholarship, and zooms in on the most prominent disaster in the ASEAN region, flooding. This chapter also explains local actions and DRM frameworks that have significantly shaped the disaster governance landscape of the Philippines and zooms in on the institutional bases for flood resilience in the country. It further discusses the susceptibility of the Philippines, particularly the National Capital Region, to flooding and examines the actions taken by international and state actors to address such challenges. This is followed by a section that explains how risk communication systems and flows of information were established and rolled out in the country and how local knowledge and experience have contributed to resilience-building in disaster risk management. The chapter also provides an overview of the study's problem statement, purpose, objectives, central research question, significance, originality, and overall organization of the study.

1.2 Disasters in the Global Arena

Disasters have caused great disruption, socio-economic losses, and alterations in people's lives worldwide (Ritchie & Rosado, 2022). The United Nations Office for Disaster Risk Reduction (UNDRR) defines a disaster as an event resulting in a significant breakdown in community operations, causing human, material, economic, and/or environmental losses (UNDRR, 2007). This implies an expensive disturbance of normative systems and social relations within a community and requires immediate mobilization of emergency services. Disasters are caused by different hazards that can be natural or anthropogenic (i.e., human-induced) in nature. Natural hazards are those caused by natural processes such as typhoons, hurricanes, earthquakes, and volcanic eruptions, among many others, while anthropogenic hazards are products of human actions and choices such as war, cyber-attacks, industrial pollution, and chemical spills. With this said, a hazard only becomes a disaster when it causes significant impacts on property, people, and the environment (United Nations University, 2024), and the impacts vary depending on the interaction of multiple factors such as the likelihood and intensity of a hazard, the exposure and vulnerabilities of a community, their socio-economic inequalities, and the environment in which they live (IPCC, 2012).

Disasters are sometimes called “great equalizers” because they do not distinguish among cultural, racial, political, geographical, economic, or gender differences when they occur, but these events magnify and intensify pre-existing socio-economic inequalities in society (UNDP, 2023). In other words, while the likelihood and intensity of a disaster can be uniform, people’s exposure, vulnerability, and capacities to prepare for, cope with, and recover from them vary and thus yield disproportionate impacts, especially for marginalized communities (UNDP, 2019). Put simply, these calamities disproportionately affect vulnerable populations (i.e., women, children, the elderly, and differently abled people) who have little to no access to resources, have limited mobility, and have little capacity to adapt. Marginalized and vulnerable populations bear the brunt of disaster impacts, which further exacerbate their risk of disasters.

1.2.1 Key Concepts in Disaster Research and Policy

To better understand the concept of disasters, risk, and resilience, it is first essential to clarify some foundational concepts that have guided scholarly and policy work in this discipline. Firstly, UNDRR defines disasters as a product of the interaction of natural or human-induced events with factors like vulnerability and exposure that result in significant disruption to the basic functioning of a society or human life. Hazards, on the other hand, refer to events that have the potential to cause harm (i.e., loss of life, injury, or damage to property), while vulnerability refers to the state to which people, animals, property, and other assets are easily harmed, damaged, or affected by a hazard. Another concept is exposure, which talks about the existence of people, animals, infrastructure, and other assets in locations highly prone to hazards. Lastly, capacity encompasses the resources, strengths, skills, and other assets that enable communities to prepare for, cope with, and recover from the impacts of disasters. On this note, disaster resilience is defined as the ability of people and communities to appropriately prepare for, cope with, and adapt to disasters and return to, if not improve, the social state of normalcy (UNDRR, 2015).

Additionally, understanding the value of grassroots and participatory governance in DRM requires clarification in key terminologies surrounding this area, particularly on local knowledge, collective experience, and community-based disaster risk management (CBDRM), which will be frequently discussed in this paper. This paper adheres to the definition of Hirono & Nurdin (2024), where they explain that local knowledge is “a process of negotiating contested understandings of how a community works, which community members gain through their history and their experience of disasters” and is context-specific

and “never static but rather dynamic, evolving constantly” (p. 2, par. 2). Community-based disaster risk management (CBDRM) is an approach to disaster risk management that promotes genuine involvement and engagement of local communities to co-create resilience practices and adaptation measures. In this way, communities can analyze and understand risks and actively manage disaster risks to reduce their vulnerabilities and enhance their capacities in ways they can apply to their local contexts. On this note, local knowledge and collective experience of disasters have been increasingly recognized as essential factors of community-based disaster risk management, where adaptation is built not only on formal policies and protocols, but through collective memory, informal coping strategies, and culturally influenced practices (Gaillard & Mercer, 2013).

1.2.2 Global Disaster Risk and Resilience Frameworks

In the global arena, DRM policies and governance have evolved through coordinated efforts and collaboration among nations to establish overarching frameworks for resilience, especially considering the ongoing climate crisis. Some of these key frameworks include the Hyogo Framework, the Sendai Framework, and the Sustainable Development Goals (SDGs). The Hyogo Framework for Action (2005-2015), albeit not a legally binding policy, was a cornerstone for DRM efforts that governments have committed to adopting. The Hyogo Framework established the foundations of disaster resilience by ramping up institutional capacities and enhancing risk awareness. In its maturity, this framework was superseded by the Sendai Framework for Disaster Risk Reduction, which expanded the vision to another 15 years (2015-2030), now emphasizing the need to involve all of society and all of government in DRM policymaking. Apart from the alignment of timeframes, the Sendai Framework links directly with the 2030 Agenda for Sustainable Development Goals (SDGs), specifically Goal 11: Sustainable Cities and Communities and Goal 13: Climate Action, in that it recognizes disaster resilience and climate change adaptation as prerequisites to sustainable and inclusive development. These lynchpin frameworks advocate for the genuine involvement of communities and the mainstreaming of disaster risk management into development planning. However, challenges remain in translating these agendas into local policies through participatory and inclusive governance, especially in countries like the Philippines, where inequalities are magnified.

1.3 Flooding in the ASEAN Region

The effects of disasters become even more complex when multiple disasters occur sequentially or simultaneously (Pescaroli & Alexander, 2015). The cascading impacts of disasters have been experienced greatly by Southeast Asian countries exposed to a tropical monsoon climate, making the region susceptible to multiple heavy rainfalls that result in large-scale, long-term, and recurring riverine, coastal, and urban flooding (UNESCO, 2023). According to Torti (2012), “the frequency and severity of flooding in Southeast Asia has increased over the past several decades” (p.1), which may be, in part, due to the extreme weather patterns and rising sea levels brought by the rapidly changing climate.

Compared to developed countries, the impacts of flooding have been more catastrophic for ASEAN countries, such as Thailand, Indonesia, Vietnam, and the Philippines, due to their limited capacities to absorb the impacts of large-scale disasters (Dimailig et al., 2022). According to the Asian Development Bank (ADB) (2021), the ASEAN subregion suffered USD 91 billion in financial losses from 2004 to 2014 from the impacts of typhoons, storm surges, flooding, drought, and earthquakes. Moreover, according to UN ESCAP’s risk and resilience portal (2021), flooding is Southeast Asia’s most common natural hazard. Additional evidence can be noted from the study of Dimailig et al. (2022), which argues that earthquakes and tropical cyclones are the most significant threats to the region’s population, where the former affects 359 million (57%) of the population, while the latter affects 310 million (49%) of the population.

Moreover, according to the International Monetary Fund, the ASEAN region’s economic exposure to hazards amounts to approximately USD 17.9 trillion, almost six times the region’s total economy in 2020 (~USD 3.1 trillion) (IMF, 2021). The massive economic gap between the region’s combined economy vis-à-vis its economic exposure to natural hazards inevitably aggravates existing socio-economic inequalities and further hampers development. Recovering from these events has become a significant development concern, particularly for the developing ASEAN countries. In this regard, it is imperative that nations prioritize disaster risk reduction and mitigation and take significant actions to accelerate investments in preparedness and resilience-building.

1.4 The Philippines’ Susceptibility to Flooding

The archipelagic country of the Philippines (PH) is determined as the country with the highest risk of natural hazards globally in the World Risk Report of 2024 (Frege et al., 2024), experiences, on average, 20 typhoons annually, with a quarter of the same resulting

in extreme flooding (Asian Disaster Reduction Center, n.d.). The country is prone to tropical cyclones as it is situated within the Pacific Typhoon Belt (the world's most active tropical cyclone basin), and typhoons and flooding in the country are projected to worsen under the current climate crisis. This poses a significant threat to government initiatives being implemented to meet the growing needs of the country's population (World Bank, 2018).

Notably, Filipinos have been more susceptible and vulnerable to the impacts of these disasters mainly due to several factors such as the country's geographic location, existing socio-economic inequalities, lack of opportunities, and access to basic services. Indeed, historical data explained how the massive impacts of disasters have hampered the country's development efforts and made post-disaster response and recovery measures harder to achieve. For instance, in September 2009, Typhoon Ketsana (locally known as Typhoon Ondoy) brought record rainfall to Metro Manila (National Capital Region - NCR), which caused widespread flooding in the region and submerged neighboring provinces due to the swelling of the Marikina River. This disaster killed 337, with many unaccounted for, displaced thousands of people, and yielded damage amounting to PhP 4.6 billion (\$80.7 million) (France-Presse, 2009 & Evangelista, 2009). More recently, in Mindanao, the southern island region of the Philippines, damage to infrastructure and agriculture caused by flooding, specifically on livestock, poultry, and fisheries, has reached more than PhP 3.6 billion (\$63.1 million), which affected more than 1.5 million people in Mindanao (Clapano, 2024). Moreover, according to the World Bank's Climate Change Knowledge Portal (2018), the strongest typhoon recorded was Typhoon Haiyan in 2013, which killed 6,000 people, struck nine (9) regions, and damaged infrastructure and agricultural lands, amounting to approximately PhP 45.7 billion (\$802 million).

By and large, the cumulative damage caused by flooding has caused great disruption to the lives of many Filipinos as they damaged critical infrastructure and essential agricultural sectors that add up to billions of pesos. This pushes the vulnerable populations further down into poverty and exacerbates their vulnerabilities to other disasters.

1.4.1 Flood-Prone Areas in the Philippines: The NCR as the Focal Point

While the country is exposed and vulnerable to flood-related risks given its archipelagic characteristics, geographic location, and monsoon-heavy climate, not all regions experience these disasters in the same way. Others fare worse due to their topography, population density, socio-economic differences, and proximity to massive river network systems that play a significant part in catching, storing, and draining rainwater and

surface water. Among these areas is NCR, a region with 17 local government units (16 cities and 1 municipality) traversed by the massive Pasig-Marikina River network. According to the 2020 Census of Population and Housing by the PSA, the NCR is home to approximately 13.4 million people (12.37 percent of the Philippine population) and, as its title suggests, an important regional center for political, economic, cultural, and social activities. Apart from the burden of rapid urbanization, growing communities of informal settlements in hazard-prone areas, limited open green spaces, and poor drainage and waste management practices, the NCR is a major administrative site in the country as it houses all its critical government bodies. These have placed the region at the center of the assessment of disaster risks and impacts, such as those of flooding.

Within the NCR, topographically depressed cities and those adjacent to major river networks, i.e., Marikina City, stand out for their recurring and widespread flooding incidents. These flooding incidents are a result of typhoons and overflowing rivers and canals. For instance, the Pasig-Marikina River basin is a significant flood hazard to low-lying riverine communities, and one of these communities is *barangay* Tumana, a consistent contender among the most flood-prone areas in Metro Manila. Comprehending the scale of the impacts of flooding would require focusing on communities such as *barangay* Tumana, where pertinent natural and anthropogenic vulnerabilities overlap.

1.5 Actions Taken by State Actors to Address Flooding

Although the impacts of flooding are shaped by environmental factors as well as urbanization, population, and socio-economic factors, the effects of these disasters may still be mitigated or avoided altogether through careful planning, appropriate investments in resilient infrastructure, and the effective communication of protective actions that strengthen preparedness at an individual level.

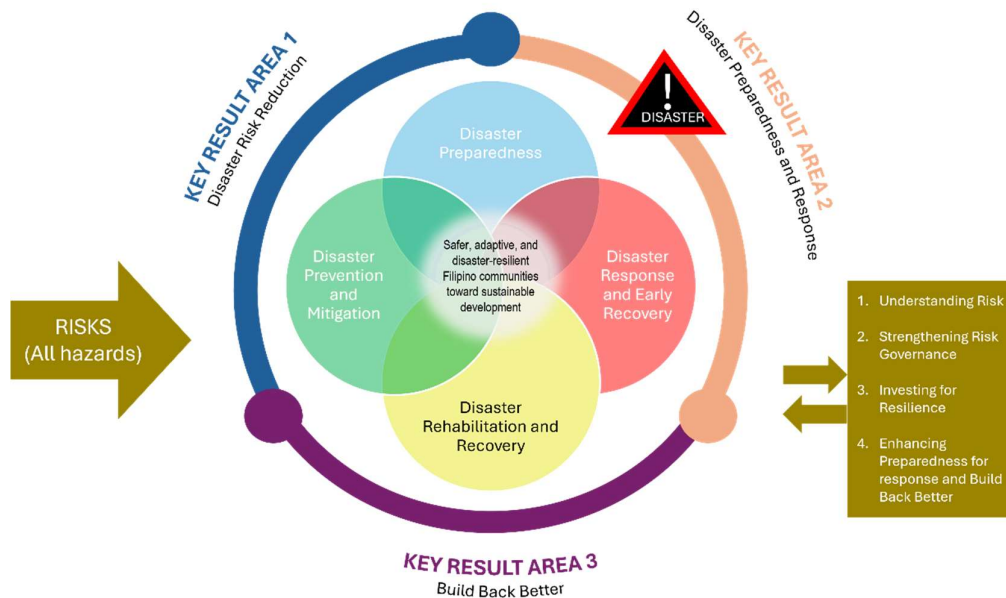
1.5.1 Local DRM Frameworks

In the Philippines, DRM has been institutionalized and centralized through Republic Act 10121 (R.A. 10121), also known as the Philippine Disaster Risk Reduction and Management Act of 2010, the law that formalized the National Disaster Risk Reduction and Management Framework. It highlights the country's disaster risk management (DRM) cycle, which includes mitigation, preparedness, response, and recovery steps. This was a monumental piece of legislation produced after the devastation of Typhoon Ketsana (Ondoy) on September 26, 2009. In simple terms, this law established the legal and

institutional framework for DRM in the country with an overall ambition to ramp up the country's capacity to mitigate, prepare for, respond to, and recover from disasters (Philippine Disaster Risk Reduction and Management Act of 2010 [Republic Act No. 10121], Section 2.n). This framework (see **Figure 1**) has now been enhanced (2020-2030) to account for developments in international frameworks and trends in climate change.

Figure 1

The Philippine National Disaster Risk Reduction and Management (NDRRM) Framework 2020-2030



Note. This diagram was illustrated by the author and was adapted from the Philippines' NDRRM Plan 2020-2030, p.51

The policy also enabled the establishment of a nationwide coordinating council in charge of the overall DRM efforts for the country, the National Disaster Risk Reduction and Management Council (NDRRMC), and further mandated local government units (LGUs) to formulate their localized DRRM plans, committees, and offices. Other LGUs have been successful in implementing and maximizing the expanded authority that this law provides. For instance, Marikina City is a good example in that it has developed its own **Early Warning System and Flood Protocol** (see **Figure 2**), which has been regarded as one of the most comprehensive and advanced locally established systems in Metro Manila and a serious contender in the world. Marikina's alert system was established and implemented after the onslaught of Typhoon Ketsana. However, it was only recently institutionalized through Local Ordinance No. 025, series of 2024.

Figure 2

Alarm System of Marikina City in the Flood Protocol

OFFICIAL WATER LEVEL MONITORING STO. NIÑO BRIDGE	
1st Alarm	PREPARE TO EVACUATE 15 METERS WATER LEVEL 1 MINUTE CONTINUOUS AIRING
2nd Alarm	EVACUATE TO DESIGNATED CENTERS 16 METERS WATER LEVEL 2 MINUTES INTERMITTENT AIRING
3rd Alarm	FORCED EVACUATION 17 METERS WATER LEVEL 5 MINUTES CONTINUOUS AIRING
Post Disaster	WATER LEVEL 14 METERS CLEARING/CLEANING REHABILITATION
MARIKINA DISASTER RISK REDUCTION AND MANAGEMENT OFFICE	

Note. This figure was illustrated by the author and adapted from Marikina DRRMO's Flood Protocol and Alarm System

Considering the vulnerability and susceptibility of Filipinos to flooding, the Philippine government has made conscious efforts to mitigate disasters, with an expenditure amounting to PhP 107.97 billion in 2022 (PSA, 2023), the highest that the country has ever had, and allocated funds specifically on flood control programs amounting to PhP 556 billion (Senate of the Philippines, 2024). However, with the country's current poor state of flood control and management, the effective utilization of such a large sum of money is questioned.

Most of the measures taken by the government and civil organizations utilize a top-down approach for DRM (i.e., beginning with the national level and then trickling down to reach local governments) or through massive infrastructure projects such as dikes or the creation of flood warning systems, evacuation planning, and disaster management planning that are passed down to localities for implementation. The conceptualization of these measures involves disaster managers, policymakers, implementers, and experts, and is hardly the product of extensive and meaningful public consultation and participation. As such, more grassroots approaches to enhancing preparedness that reach actual communities are needed to reduce the people's risk of flooding.

Furthermore, information plays a critical role in making time-bound decisions in disaster management, which calls for effective information dissemination not only to authorities but also to private citizens. Timely, accessible, and understandable information

helps empower individuals to make informed decisions and protective actions during times of disaster. More recently, the Philippine government has rolled out several initiatives to keep the public informed during times of calamity that take the form of early warning and surveillance systems, hazard mapping, SMS alerts, and public announcements, but the effectiveness of these efforts is inconsistent, particularly for low-income communities that have low literacy rates and have very limited access to digital devices (i.e., phones, radio, computers, or television) and the internet.

For low-income communities like Tumana, these information barriers have had life-threatening consequences, and since residents do not all have equal access to devices and channels where most of the disaster information is delivered, they often rely on informal information channels (i.e., word-of-mouth, gossip, traditional PA announcements, and the like). These limitations can, therefore, create a disconnect between the communication platforms and messages being cascaded by authorities, both from national and local governments, and the actual communication needs and realities of the people affected on the ground. Traditionally, risk communication is treated as a linear process, with the message coming from one source and being sent to a receiver. To address the current challenges in information dissemination, authorities must redirect their focus from one-way transmission to meaningful dialogue to involve communities whose knowledge and experience are essential in crafting adaptive flood resilience initiatives.

1.5.2 Risk Communication and Information Dissemination in DRM

Since 2010, the country's DRM landscape has been shaped by a centralized framework institutionalized through the R.A. 10121, and although the policy's nature is generally centralized, the policy introduced a more cohesive framework for inter-agency and multi-sectoral collaboration for managing disaster risks. This legislation mainstreamed DRRM in national and local policies and decentralized the functions of managing disasters to local governments, offering them more authority, responsibilities, and capacities for DRRM through the Local Disaster Risk Reduction and Management Fund (LDRRMF). This law also established the NDRRMC, the primary policy, coordination, and monitoring body regarding DRRM in the country. The NDRRMC is mandated to craft policies, coordinate efforts, and oversee DRRM activities in collaboration with local governments all throughout the Philippines. The R.A. 10121 placed NDRRMC and the LGUs at the forefront of DRRM and shifted the focus of the country from reactive disaster response and rehabilitation (i.e., actions after the onset of a disaster) to more proactive management of risks (i.e., actions

before disasters occur) in the form of preparedness and mitigation initiatives. However, given the structure, DRRM in the Philippines has long been guided by top-down approaches, with information dissemination and emergency response beginning from the national to the local level.

A study by Vukajlovic et al. (2019) highlighted the importance of information because it serves as the basis for appropriate decision-making and efficient communication between stakeholders. For preparedness actions to occur, individuals must first be aware of the hazards and understand the threats within their localities (Hoffman et al., 2017). In these cases, knowledge and capacity are needed to tailor the outputs for end-users pressed to make critical calls during an emergency (Dimailig et al., 2022), and one simple way to promote preparedness and raise awareness is through effective risk communication. Risk communication usually includes public information campaigns, public announcements or warnings, television/radio broadcasting, social media, formal education methods, cellular messaging, or community engagement and interaction. However, these approaches are often disregarded as mere public service announcements rather than sources of disaster education, hence the need to rethink communication.

To truly engage individuals, delivering risk information must focus on what technical aspects must be known and which channels are effective for individuals to receive and act on the information they acquire. While the government has shifted its attention to local disaster mitigation and preparedness strategies, most of these are based on international standards and frameworks, with little to no reference to local communities' actual experiences and informal practices to adapt to flooding. This study presents a case study of a local community in Marikina City, a city that utilized local knowledge, local experience, and the involvement of all sectors of society to develop its flood management protocol, and more specifically, in the low-lying, low-income, riverine community of *barangay* Tumana.

1.5.3 Local Knowledge and Collective Experience in Resilience Building

The concept of resilience has evolved from assessing tangible factors such as economic capacities, physical infrastructure, and technological advancements to incorporating more intangible factors such as lived experiences, culture, and local knowledge. Particularly for disaster-prone developing countries like the Philippines, whose population is significantly below the poverty line, these often informal and undocumented assets play a significant role in shaping risk perception and protective behaviors against disasters like flooding.

Although community-based resilience has become a more prominent concern for public policy, government actions remain guided by top-down approaches, which neglect the experiences, local knowledge, and adaptive efforts of communities. For a flood-prone, poor community like Tumana, it is paramount for local authorities to account for such resources and include them in existing information dissemination schemes. Doing so can ensure that the residents are adequately informed about risks and the preparedness actions they can take to mitigate the impacts of flooding. Additionally, in Tumana, local people have learned to endure recurrent floods through their years of lived experience. This allowed them to develop unique and informal ways to adapt to flooding. These community efforts allow for varied forms of localized knowledge to emerge and take the form of informal warning schemes, evacuation protocols, and coping mechanisms. Most of these schemes are a product of their basic need to survive despite minimal access to socio-economic support and the collective memory of the local people.

1.6 Problem Statement

Filipinos are exposed to multiple disasters each year, mainly typhoons and typhoon-induced flooding, hazards that are projected to intensify due to climate change. According to Monjardin et al. (2019), the Marikina River is expected to experience increased rainfall depth and more frequent, widespread flooding in the future. Thus, with the worsening typhoons, the river may reach beyond critical levels in the future, exposing residents living in low-lying riverine communities like Barangay Tumana to persistent, unprecedented, and escalating flood risk. While flooding does not necessarily yield an immediate catastrophic number of deaths compared to its rapid onset disasters like earthquakes, the aftermath of flooding has profound socio-economic impacts on people, where preparedness and access to resources are crucial in determining a household's capacity to rebuild, recover, and reduce future disaster risk.

Despite advancements in flood management infrastructure, early warning systems, and national and local policies shifting toward disaster resilience, many Filipinos remain unprepared for disasters (Bolletino et al., 2020) due, in great part, to Filipinos' varied risk perceptions. These perceptions are influenced by cultural, historical, socio-economic, and experiential factors and can motivate or hinder individuals from adhering to recommended protective behaviors in the face of flooding. Moreover, although local knowledge has played a key role in DRM discourses in the Philippines, this asset remains underutilized in local

flood management policies. In the same vein, research on how this knowledge and lived experience shape protective actions against flooding remains scarce.

1.7 Research Purpose

This study aims to contribute to existing knowledge by understanding how local knowledge and collective experience can influence the protective behavior of low-income residents living in a low-lying, flood-prone *barangay* in Marikina City, Philippines, to supplement formal policies and protocols to enhance local disaster resilience. This study places special emphasis on *barangay* Tumana because it serves as a microcosm of understanding how past flood disaster experiences influence or potentially serve as barriers that hinder protective behavior against flooding. Narrowing the scope of the study to this specific locality allows the researcher to develop a more grounded, authentic, and deeper understanding of flood risk, local knowledge, and collective experience, as well as their implications on community-based flood resilience. Understanding how local knowledge and experience could shape protective behavior could potentially pave the way for more effective flood resilience strategies at a community level, which can reduce losses from floods in the years to come.

Instead of the traditional top-down approach to local planning, this study intends to explore and advocate for a bottom-up approach in disaster risk management planning and implementation, where the end-users of the protocols and disaster information proactively influence the development process and engage in its implementation, ensuring co-ownership and appreciation of the entire disaster risk management process. Moreover, this study aims to encourage local governments to ensure that the risk information and protective actions against floods that are cascaded to the public are tailored to the needs of the intended receivers and, therefore, will be well-received, understood, and, most importantly, translated into desired protective actions. This study is important because recognizing that local knowledge and collective experience can shape a community's protective behavior against a disaster threat, such as flooding, is essential to develop more human-centered policies and strategies, especially for adaptive and appropriate community-based flood resilience policies and protocols.

1.8 Research Objectives and Central Question

The objectives of this study is two-fold: First, to understand how local knowledge and collective experience can shape a community's protective action against the threat of

flooding guided by the Protective Action Decision-Making Model (Lindell & Perry, 2004 & 2012); Second, to determine how local knowledge and lived community experiences can be integrated into flood resilience policies and protocols through participatory governance, particularly through the operationalization of the Whole-of-Society (WoS) approach (Kjellén, et al., 2023). To achieve these objectives, the study aspires to answer the central question: **“How can local knowledge and collective experience inform protective behavior and formal policies against flooding?”**, and further probes into the ways in which these assets can be integrated into protocols and policies to enhance community-based flood resilience. This study follows the assumption that local knowledge and lived experience in flooding significantly shape protective behaviors and that current flood resilience policies will be enhanced through the effective integration of these assets using a participatory governance approach.

1.9 Significance of the Study

For many impoverished communities with little access to basic services, quality education, and resilient housing and infrastructure, local knowledge and collective experience have been essential in protecting oneself from disasters. These communities often rely on informal and improvised practices to cope and mitigate the risks of disasters, especially when formal disaster resilience initiatives are limited (Pandey, 2018). On the other hand, risk communication plays a crucial role in disaster preparedness as it permits real-time exchange of information between officials and the public at risk to help them make informed decisions and protect themselves before disasters (WHO, n.d; FAO, 2020). Hence, it can be a tool to influence risk perception and encourage positive behavior changes (Cool et al., 2015) that governments can use to inculcate preventive actions against disasters. This research follows the assumption that protective behavior is influenced by risk perception, which can be shaped and molded by local knowledge and collective experience, particularly in terms of disaster preparedness. Following this logic, embedding local knowledge and collective experience in DRM policies can yield appropriate, adaptive, and sustainable community-based flood resilience for urban-poor communities.

This research aims to bridge the knowledge gap by analyzing how local knowledge and experience can shape flood protective behavior based on the PADM theory. It further aims to understand how these assets can be integrated into local flood resilience plans, policies, and protocols using the WoS approach. By and large, the findings of this study aim to shed light on the behavioral-policy nexus of flood risk management and ultimately

contribute to the resilience-building efforts of the country by advocating for community-based flood resilience strategies that result in desired and sustained disaster preparedness actions against floods. This is of principal importance during emergencies, particularly during the first 72-hour post-disaster onset, where government support cannot be delivered immediately, and the community, especially urban-poor communities, must rely on one another for information, support, and assistance.

1.10 Originality

Few studies have been conducted to explore how local knowledge and collective experience shape protective actions and contribute to the co-creation of grassroots policies for flood resilience using a localized approach. While previous studies have explored flood resilience and behavioral responses separately, and often utilizing quantitative approaches, this work is the first of its kind to explicitly integrate these study areas using an interdisciplinary dual-lens analytical framework. Ultimately, this research offers a novel approach to understanding and enhancing community-based flood resilience by linking authentic behavioral insights with a comprehensive policy critique through its methodological integration of the Protective Action Decision-Making (PADM) model (Lindell & Perry, 2004 & 2012) and the Whole-of-Society (WoS) approach (Kjellén, et al., 2023).

1.11 Organization of the Study

The research is composed of seven chapters. The first provides an overview of the study and includes background on disasters from a global perspective to a more local perspective in the Philippines. It also details the problem statement, the research purpose, objectives, and questions, the significance of the study pursued, and concludes with the study's novelty. The second provides a more detailed context on the study site, *barangay* Tumana in Marikina City, Philippines, its historical roots, politico-administrative history, with an emphasis on the site's vulnerability and susceptibility to flooding, and details about the residents who were involved in the study to provide more in-depth understanding about the site's appropriateness for the research inquiry. The third review related literature on flooding, local knowledge, and collective experience and closes with a summary of literature gaps that this study aims to address. The fourth explains the research design and methodology and expounds on the site selection and sampling method, ethical considerations, data collection, and analysis. The fifth chapter presents the study results and

data findings. The sixth discusses the results with respect to the theories that guide the analysis. Finally, the seventh provides the conclusion of the research and recommendations for further studies.

Chapter One: Introduction

Chapter Summary

This chapter opened with a discussion on the increasing frequency and intensifying impacts of disasters globally, emphasized flooding as a major and prominent hazard in the ASEAN region, and zoomed in on intense and recurring flooding in the archipelagic country of the Philippines. It also introduced key terminologies, concepts, and frameworks in global disaster governance and provided an overview of the existing local disaster risk management strategies and frameworks to describe the foundation of flood resilience efforts, policy discourse, and scholarship in the Philippines, particularly in the National Capital Region (i.e., Metro Manila). The chapter also reviewed state responses to flooding, underscoring the role of effective risk communication, local knowledge, and collective experience in community-based flood resilience building. The chapter concluded with the presentation of the study's problem statement, research purpose, objectives, central question, significance, originality, and overall organization.

Chapter Two: Background

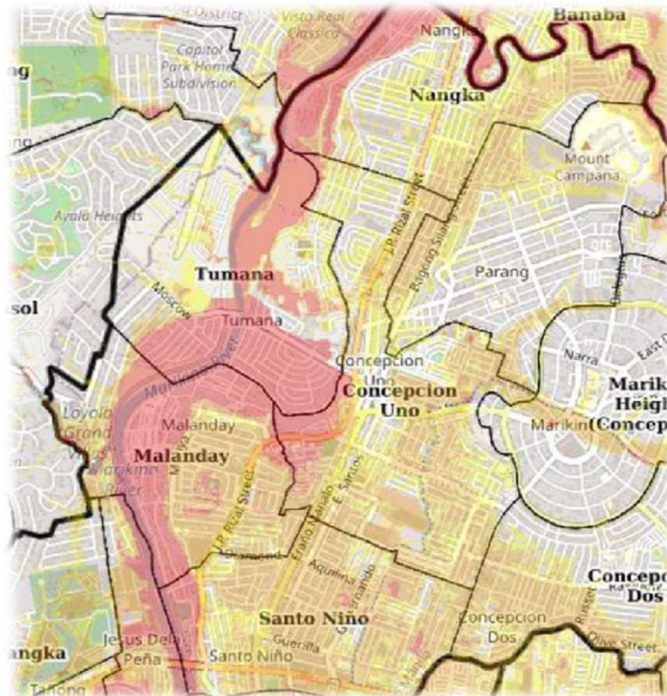
2.1 Chapter Overview

This chapter provides an in-depth account and description of the study's target site, *barangay* Tumana, Marikina City, Philippines, to provide the reader with the contextual background and understanding of this area's vulnerability to hazards and the ways in which the residents of this community have lived to overcome the threat of persistent and recurring flooding. It discusses the local community's risk profile, the massive river and river network surrounding it, the site's topography and geography, its flooding and politico-administrative history, the residents and the socio-economic fabric of the area, details about their dwellings, and closes with a discussion on the climate projections and future disaster risks that these residents will face in the years to come.

2.2 Barangay Tumana's Risk Profile

Figure 3

Barangay Tumana's Street & Flood Hazard Map with Political Boundaries as of 2020



Note. This map is sourced from the Nationwide Operational Assessment of Hazards (NOAH) (2020) from Mariano et al. (2021)

Tumana is one of the 16 *barangays* in Marikina City on its eastern side and part of the Second District. It is bounded by *barangay* Nangka (on the northeast), *barangay* Concepcion Uno (in the east side), *barangay* Malanday (on the south side), *barangay* Santo Niño (on the southeast side), and *barangay* Parang (on the south side). These localities, including Tumana, are noted as the *barangays* with the highest susceptibility and vulnerability to flooding due to their proximity to the Marikina River – a primary waterway that connects to the extensive river network of Metro Manila, and which also significantly affects Tumana’s landscape. **Figure 3** shows a hazard and street map of *barangay* Tumana and its political boundaries from 2020 while **Figure 4** shows an updated street and flood hazard map of the locality, where flood risk has become more prominent and widespread.

Tumana’s land area was a part of the river path, with the river flowing adjacent to it. However, during the American colonization, the river flow was redirected away from this area, including *barangay* Concepcion Uno, through the development of levees primarily for agricultural purposes. This shifted the river's flow and made it possible not only to inhabit the land in Tumana but also to grow large vegetable farms because the soil was rich in nutrients it acquired from the river (Marikina Ecological Profile, 2020).

Figure 4
Barangay Tumana's Street & Flood Hazard Map (2025)



Note. This flood hazard map was sourced from the University of the Philippines - Nationwide Operational Assessment of Hazards (2024)

2.2.1 The Marikina River

Throughout much of Filipino history, the Marikina River was known to be a major waterway in Metro Manila, serving as a transportation route for many seafaring Filipinos, a source of livelihood for locals through fisheries and agriculture, and a drainage channel for flood waters in the central parts of the region. The Marikina River is an important waterway in the complex river network of NCR (see **Figure 5**), and it plays a significant role, especially during the wet season, as it catches rainwater from higher surrounding areas of Quezon City, Pasig City, and Rizal Province and drains the surface water from surrounding cities. Several tributaries, like creeks or esteros that function as rainwater and drainage canals for highly populated cities, flow into the Marikina River, which then drains the Pasig-Marikina River basin and eventually empties into Manila Bay. About 80% of the annual rainfall it receives occurs from May to October, with very serious floods occurring from August to November. These floods are caused by runoff water from the slopes of the Sierra Madre Mountain range on the east side of Marikina Valley (Badilla, 2008).

Figure 5
The Marikina River and the Larger River Network of Metro Manila



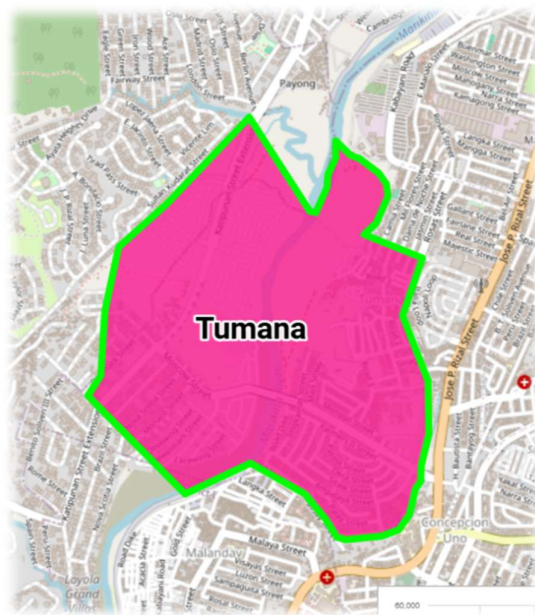
Note. This map was sourced MMDA (2009), from Sato & Nakasu (2011).

In the 19th to 20th century, the entirety of Marikina City was industrialized, causing rapid urbanization and the conversion of farming lands into residential areas. Many people who could not afford to buy land or property within safer parts of the city relied on the riverbanks, built settlements made of light materials, and relied on the river for basic needs like food and water. Provided that these residents were informal occupants, they had very little income and access to basic facilities such as electricity, water, and sanitation. Moreover, during this time, due to poor solid waste management and weak waste regulation in the city, some parts of the riverbanks were turned into small illegal dumpsites, particularly for those living along the riverbanks whose dwellings were unreachable by garbage collectors. As a result, these communities created makeshift toilets and bathing areas and disposed of their trash near and/or directly on the river. All the trash and garbage hampered the smooth flow of water across the river and contributed to the rapid rise of the water when it rains, eventually flooding the city during the monsoon period. Due to these natural and anthropogenic outcomes, the Marikina River has become a health hazard for residents during normal times and a flood hazard during the rainy season.

2.3 Site Topography and Geography

Figure 6

Barangay Tumana vis-a-vis the Marikina River



Note. This map was retrieved from PhilAtlas (2015)

Barangay Tumana is a low-lying area that forms part of the Marikina Valley and is situated within the Marikina River's floodplain (see **Figure 6**). The Marikina Valley lies

between the Capitol Hills and the Sierra Madre Mountain range, and for Tumana, this geographical position makes it particularly vulnerable to riverine flooding, especially during heavy rains and typhoons that make the river swell, causing the water level ¹to reach as high as 21 meters. The plot of land that *barangay* Tumana occupies is mostly flat and descends towards the river. It is an urbanized locality with residential and commercial establishments and several reclaimed areas to stimulate urban development. Although these characteristics make it ideal for residents to live and thrive, they also make the locality more susceptible to multiple natural hazards (see **Table 1**), mainly flooding, and these vulnerabilities make flood management difficult for the local government to maintain.

Table 1
Record of Natural Hazards that Threaten Barangay Tumana

Barangay	CLIMATE AND						
	WEATHER-RELATED HAZARD			GEOPHYSICAL HAZARD			
	Flood	Rain-induced Landslide	Severe Wind	Ground Shaking	Ground Rupture	Liquefaction	Earthquake-induced Landslide
Tumana	✓	✓	✓	✓	✓	✓	✓

Note. This table was retrieved from the Marikina Ecological Profile, 2020, p.70

Interestingly, despite the geographical characteristics of *barangay* Tumana, it is important to note that it served as a vital relocation site for underprivileged and informal settlers (also called “squatters” or the homeless) who lived in high-risk, topographically depressed, and flood-prone areas along the Marikina River, particularly under the Community Mortgage Program (CMP) in the 1990s (Frivaldo, 2017) and Marikina City’s “Squatter-Free Marikina” program initiated in 1993 which aimed to relocate approximately 7,000 informal settler families (Galing Pook Awards, 1998). With Marikina City serving as a booming city brought by rapid urbanization and an influx of migrants from provinces looking for better opportunities in Metro Manila, these efforts enabled the government to relocate vulnerable populations and informal settlers to safe, secure, and affordable socialized housing sites within the city and consequently implement flood management and rehabilitation projects for the Marikina River and the riverbank. As of 2014, 5,935 households have been relocated to Tumana (Frivaldo, 2017).

¹ The water level of the Marikina River during normalcy is at 1-2 meters.

2.3.1 Flooding History in Barangay Tumana

The tendency of the Marikina River to swell has been a concurrent issue that dates to as early as 1937, and to this day, the city continues to face recurrent widespread flooding, with the floodwater rising to as high as 18 meters (Espina, 2018). Conditions have been worsened due to issues such as rapid urban development, growth in population, especially of informal settlements in the riverbanks, inadequate waste, sewage, and drainage systems, and conversion of green spaces to concrete structures, and the like, that compound the impacts of flooding in the area. Tumana is a low-lying riverine community that was ironically a relocation site for high-risk, low-income communities residing along the riverbanks. However, due to socio-economic inequalities, limited access to basic services, and affordable housing, these communities ended up living in makeshift dwellings that made them vulnerable to multiple disasters, particularly typhoons and flooding. Two decades after the year 2000, several typhoons caused the river to reach beyond its critical level of 18 meters, resulting in severe flooding, massive economic and infrastructure losses, extensive disruption of transportation, and the deaths and displacement of people. **Table 2** below illustrates the economic and human costs of the worst flooding events affecting *barangay* Tumana from 2009 to 2020.

Table 2

The Economic and Human Costs of the Worst Floods Affecting Barangay Tumana, Marikina City, Philippines

Typhoon (local name)	Year	Total Damage (Infrastructure)	Total Damage (Agriculture)	Total Deaths	Total Affected
Ketsana (Ondoy)	2009	~ PhP 4.437B	~ PhP 6.669B	~ 464	4.9 million
Southwest Monsoon Rains (Habagat)	2012	PhP 596M	PhP 19.5M	92	3.3 million
Typhoon Vamco (Ulysses)	2020	PhP 11.796B	PhP 7.251B	73	4.6 million

Note. The data in this table were sourced from the Philippines National Disaster Coordinating Council (NDCC) Situation Reports (2009); National Disaster Risk Reduction and Management Council (NDRRMC) Situation Report 13 (2012); and SitRep 20 (2020).

2.4 Politico-Administrative History of Barangay Tumana

Tumana's founding as an official *barangay* came with the formalization of other *barangays* to expand Marikina as a city and establish its politico-administrative units. Based on general historical knowledge, the *barangay*, as it exists today, was institutionalized

through local government restructuring and reorganization that took place in 1956. Later, the Local Government Code of 1991 (Republic Act No. 7160) was implemented, providing a comprehensive framework for local governance, including the creation, administration, and responsibilities of smaller political units like *barangays*. With this significant reform in the Philippines' politico-administrative history, *barangays*, including Tumana, have evolved to have more powers, resources, mandates, and responsibilities that empower the locality to this day. Through the decentralization efforts of the Philippine government, *barangays*, including Tumana, were allowed some independence in making administrative decisions that concerned their geographical jurisdiction, including disaster risk management and climate change adaptation and mitigation.

2.5 Residents of Barangay Tumana

Barangay Tumana has a land area of 191.40 hectares (Marikina City Ecological Profile, 2020) and, as of the 2020 Census conducted by the PSA, is home to approximately 47,500 residents and 10,531 projected households, accounting for 10.41% of the city's entire population. This means there are at least 14,000 individuals per square kilometer. These facts, along with the *barangay's* projected population, illustrate the crowded living conditions, particularly those close to the river, and the inadequate open spaces available for recreation. **Table 3** below shows the projected population and gross density of the five (5) densest localities in Marikina City, including *barangay* Tumana.

Table 3
Projected Population and Gross Density of Top 5 Densest Barangays in Marikina City, 2022

<i>Barangay</i>	Population	Area (Has.)	% by Area	Density
Tumana	46,991	191.40	8.27	245.51
Barangka	20,110	80.11	3.46	251.02
Parang	45,277	170.46	7.36	265.61
Nangka	47,632	159.50	6.89	298.63
Malanday	60,253	165.58	7.15	363.89
TOTAL	489,859	2,314.37	100%	211.66

Note. The estimated population is based on a 25% growth rate. Moreover, the figures in this table were retrieved from the City Planning and Development Office (CPDO) of Marikina City, Marikina City Ecological Profile (2023), p. 9. The table was consolidated by the author to highlight the top 5 densest localities among the 16 *barangays* in Marikina City.

Additionally, based on the 2015 census conducted by the PSA, *barangay* Tumana has a young demographic, where those aged 14 years and younger make up 42% of the total residents, constituting the highest in terms of age group for the locality. Conversely, those

aged 64 years and older are much smaller, representing only 4% of the population. Looking into the age distribution, the largest segment of the population falls within the working-age population, representing 65.68% of the residents in Tumana, while those aged 14 and below, which consist of the young dependent population, represent 31.83% (13,765 individuals) of the population. According to the same census data, the computed age dependency ratio for Tumana reveals approximately 52 dependents (including young and old age) for every 100 of the working population.

2.5.1 The Socio-Economic Fabric of Barangay Tumana

Tumana is a diverse and densely populated community shaped by various cultures, histories, urbanization, and, more recently, its experience in flood disasters. A significant portion of this population is taken by low-income to middle-income households, and most employed residents are engaged in local businesses, markets, small retail businesses, and industries like sari-sari stores, convenience stores, carinderias or food stalls, and other service-related businesses. Others rely on informal economies driven by logistics, transportation, and fishing, especially for residents near the river. These ventures, albeit widespread in the *barangay* and boosting its economic activities, are small-scale and, thus, are highly sensitive to disruptions caused by flooding. In PSA's 2018 survey, the average monthly income of households in Metro Manila was approximately ₱38,333 (PSA, 2018), whereas the monthly average income of households in Tumana was ₱15,838, about 46.61% lower than that of the regional average (Espina, 2018). Since a more recent and detailed statistic on the average monthly income of Tumana is limited, Espina's study in 2009 provides the best available source for this metric, noting that similar industries, types of employment, and household sizes are generally consistent in Tumana. For this reason, it is safe to assume that the income levels of Tumana residents have not drastically changed and remain significantly lower than those of neighboring cities.

Moreover, in the survey conducted by Espina (2018), data revealed that more females are household heads than males; hence, they assume more pivotal roles, such as decision-making, caretaking, community responsibilities, leadership roles, and providing for the family in their households. This may be due, in part, to the fact that in Tumana, there is a higher female participation in higher education, and females outnumber males among baccalaureate degree holders. This trend represents a shift in the gender dynamics in education for Tumana. Provided that education is linked to empowerment (Mahanta, 2024),

confidence, and opportunities, this shift can influence household dynamics, where women take on more decision-making roles than their male counterparts.

The level of education varies among the residents in Tumana. However, a standard trend is that families prioritize basic education for their children. Although Marikina City has a good, accessible, and affordable education system, access to these educational services can be hindered for lower-income households, as the children are expected to work to contribute to family income. Another hurdle that these families must overcome is school cancellations and disruptions brought by disasters such as typhoons and floods.

In this regard, while a more current dependency ratio for *barangay* Tumana is not readily available, based on the 2015 and 2020 census, general trends in population, and information on the proportion of dependent groups vis-a-vis the working group, it is safe to assume that a considerable portion of the population depends on their parents or guardians to live, adding pressure to public services and support meant to address the needs of all these residents. Lower-income communities like Tumana have much larger household sizes than their middle- and high-income counterparts, which entails more mouths to feed and lives to protect should emergencies and disasters occur.

The social fabric of this community is a mix of low- to middle-income residents and mostly working-class families. For the most part, Tumana houses a close-knit and well-bonded community where residents recognize and understand each other to a considerable degree. This is due, in part, to the length of time these residents have been living in the area, along with the experiences they have shared as a community. Additionally, since Tumana is generally a small area, residential areas and establishments where people gather, such as churches, markets, and schools, are situated close to each other, offering multiple opportunities for the residents to interact with one another, even on regular days. The neighborhood is filled with both formal and informal events in which the residents are actively involved, such as religious activities and other local celebrations in the local *barangay*. This proximity to each other contributed to building a close relationship between and among the residents in Tumana and is especially manifested during times of calamities like flooding. During these emergencies, the residents can be seen assembling and engaging in informal community-based activities for preparedness and rescue operations.

2.5.2 The Housing Structure of Residents

Housing structures within *barangay* Tumana also vary depending on the households' socio-economic status and proximity to the Marikina River. A considerable portion of

Tumana's low-income population lives in informal settlements or slums along the riverbanks and low-lying flood-prone zones, making them highly vulnerable to inundations. These make-shift homes are made from light materials like wood, nails, metals, and similar materials and are easily damaged during typhoons and flooding. The slum areas in *barangay* Tumana are densely populated and, as such, the houses in these areas have little space between them and little to no access to running water and proper drainage systems, exacerbating the risk of other hazards such as fire or diseases. The residents in these areas not only have poor access to services and facilities, but they also do not have a stable means of earning income, making it difficult for them to adapt to the realities of the rapidly changing climate, which worsens typhoons and causes widespread, extended, and recurring floods. As a result, these families suffered repeated losses during typhoons and flooding, putting them deeper into poverty.

Middle-income families that can afford it could improve their dwellings by using better materials and construction to produce more durable concrete homes that withstand typhoons and flooding. These homes are usually owned by long-term residents who have a good understanding of the flood susceptibility of *barangay* Tumana, and, as such, have built higher floors (up to three to four floors) in cases of flooding. Many other families who cannot afford to own permanent land rights and build homes resort to small rental housing options in Tumana, with multiple individuals sharing small spaces due to the high population density in the *barangay*.

2.6 Climate Projections and Future Risks for Barangay Tumana

Extreme weather events will increase in the coming years (PAGASA, 2011). Moreover, a study by Espina (2018) notes that Tumana is projected to experience an incremental rise of 1°C by 2020, which will produce more intense typhoons and longer dry spells, along with a significant increase in precipitation during the wet season, further worsening the occurrence of flooding in the locality (p. 143). With climate change causing global temperatures to rise, *barangay* Tumana should anticipate stronger typhoons that can cause the Marikina River to swell well beyond its critical level of 18 meters. This will, in turn, cause more widespread and frequent flooding of residential neighborhoods like Tumana, endangering vulnerable populations, their livelihoods, and properties. To this end, individual households and residents must be aware of the flood risk they will face and be prepared to address the impacts of flooding events to minimize losses from these disasters.

Chapter Two: Background

Chapter Summary

This chapter offered a comprehensive profile and description of *barangay* Tumana, Marikina City, Philippines – the study’s target community – and placed emphasis on its vulnerabilities, socio-economic conditions, and exposure to flood risks. More specifically, this chapter zoomed in on *barangay* Tumana’s local risk profile, including its geography, topography, the surrounding river system, the area’s flooding history, and politico-administrative context to demonstrate how these factors have contributed to the community’s existing flood risk landscape and justify its selection as a case for the study being pursued. Finally, the chapter concludes with an examination of the socio-economic characteristics of the residents, their housing conditions, and closes with a presentation of climate projections and risk forecasts for *barangay* Tumana

Chapter Three: Literature Review

3.1 Chapter Overview

This chapter reviews key scholarly works on disaster risk management (DRM), flood resilience, and community-based responses to provide a foundational understanding of the academic and policy contexts surrounding these topics. This section highlights how local experiences and collective knowledge, albeit an important contributor to protective behaviors, have been overlooked in local disaster policies. Through the assessment of literature in these areas, this review identifies literature gaps, particularly on the lack of integration of informal community-based adaptation initiatives shaped by local knowledge and collective experience into formal flood resilience protocols.

3.2 The Limitations of Existing DRM Frameworks

As noted in the previous chapter, the Philippines, and more specifically the City of Marikina, has a well-founded, well-established, and functional Flood Protocol system. Unfortunately, despite the full implementation of this elaborate system, efforts can still fall short, particularly for high-risk areas like *barangay* Tumana. For these areas, flood risks persist because of the area's exposure and vulnerability to the overflowing of the Marikina River, which the protocol does not and cannot directly address. In these locations, the locals have devised informal early warning and evacuation protocols guided by their experience and knowledge of past flooding events to supplement Marikina's formal protocols and protect themselves from floods. These improvised assets, however, are rarely, if at all, recorded and documented, and therefore, are difficult to integrate into formal policies. This reflects gaps in the genuine integration of local perspectives in DRM in the Philippines, both in academic inquiry and in practice.

3.3 Risk Communication and Disaster Governance

Risk communication is the exchange of information between authorities and the public to guide the latter in making protective decisions when disasters occur. For the Philippines, risk communication remains very technocratic, with information being sourced from national bodies and agencies and cascaded down to communities, rather than produced through dialogue (Bankoff, 2003; Gaillard & Pangilinan, 2010). To this day, alerts and early warnings about hazards are issued by agencies like the Philippine Atmospheric, Geophysical, and Astronomical Services Administration (PAGASA) and the NDRRMC through SMS,

radio, mobile phone broadcasts, social and traditional media, and assumes that once this information is disseminated, will trigger a nation-wide preparedness response that is timely and appropriate for all. However, a genuine result of this centralized approach is that the reception of these messages is inconsistent across people due to different accessibility factors such as socio-economic backgrounds, location, language, and age. These limitations make it difficult for warnings to effectively cascade, particularly to vulnerable populations in poor urban households with limited access to basic services like education and digital infrastructure (Porio, 2014). By and large, the current risk communication system of the country tends to overlook the existing socio-economic realities of poor communities like *barangay* Tumana. For these communities, surviving disasters despite their limited access to basic services has enabled them to be creative and resourceful, using collective experience, memories, social networks, and local flood knowledge to prepare for and adapt to floods.

For many urban-poor communities in the country, many have been skeptical about officially cascaded risk information and warnings, due in great part to experience with disasters like flooding, coupled with government inaction or delays in evacuation and relief support (Bankoff, 2004; Delica-Willison & Gaillard, 2012). In establishing sustainable adaptive flood protection measures for these communities, it is essential to understand that because of their realities, these people will frequently rather rely on local community leaders, their neighbors, and actual environmental cues (i.e., flood levels in the streets) in implementing protective behavior against flooding, rather than resort to formal advisories which they do not have consistent access to. Additionally, a study by Fullero et al. (2024) notes that customizing risk information to different cultural and linguistic backgrounds, utilizing varied channels, and collaborating with trusted community members, acknowledging the value of emotions, and facilitating a dialogue rather than mere transmission are key strategies for effective risk communication. In this regard, for risk communication to be effective, it is essential that those who deliver messages to the people are credible, accountable, and able to establish trust with these communities.

Furthermore, while DRRM policies in the Philippines are aligned with international DRM frameworks such as the Sendai Framework for Disaster Risk Reduction² and the Hyogo Framework for Action³, both of which underscore grassroots involvement in DRM

² United Nations Office for Disaster Risk Reduction (UNDRR). (2015). *Sendai Framework for Disaster Risk Reduction 2015–2030*

³ United Nations (2005). Hyogo framework for action 2005-2015: Building the resilience of nations and communities to disasters. Retrieved from: [UNISDR](https://www.unisdr.org/)

planning, operationalizing this principle remains limited in the country (Porio, 2017; Hirono & Nurdin, 2024). Genuine involvement, participation, and consultation with vulnerable communities in developing DRM policies, protocols, and risk communication plans remain lacking, which means that local governments and the citizens are passive recipients of policies and information, rather than contributors to the resilience policies designed to protect them. This highlights a critical gap both in policy research and practice and addressing this disconnect requires a significant shift in disaster governance, from highly technocratic and centralized to one that is grounded and built on the actual experience, knowledge, and contexts of the local people (Gaillard & Mercer, 2013).

Community involvement in DRM, in its ideal form, should pave the way to empower communities and amplify their voices in policy discussions for flood resilience. It should also empower them to become involved not only in the consultations but also in the implementation and improvement of the policies that intend to improve their lives. Given the traditional top-down approach to policy making in the country, local governments and communities are treated as end-users and mere receivers of instructions for protective behavior, rather than active partners in co-creating localized flood adaptation schemes. Unless government initiatives to prepare and protect the people from disasters are based on both scientific risk assessments and local and context-specific knowledge from the people, initiatives will remain incomplete, reactive, and ineffective (Shaw et al., 2009).

3.4 Lived Experience and Collective Memory as Local Disaster Knowledge

Individuals often rely on past experiences and collective memories, apart from official warnings and social and environmental cues, to come up with actions against threats like disasters. Local contexts as well as recollections of past floods, even traumatic ones, can trigger protective actions, albeit informal and unofficial (i.e., not in actual policies or protocols cascaded by authorities), even in the absence of formal recommendations (Owusu Twum & Abubakari, 2019; Ruin, et al., 2014). These actions, informed by lived experiences and collective memory, form informal coping strategies that can be passed down to generations, such as word-of-mouth warnings or self-curated family evacuation plans. These localized responses significantly influence risk perception and, consequently, protective behavior against flooding.

Unfortunately, the nature of this local knowledge, in that they are lived, also means that it is rarely documented and integrated into formal disaster planning and policymaking. As such, many policies and programs tend to be inappropriate for local communities with

unique socio-economic and topographic characteristics and vulnerabilities, which can lead to resistance and inefficiencies. To create effective disaster preparedness policies, actions must be developed through genuine participatory governance. As such, governments must revisit the benefits of genuine community engagement and participation in co-creating adaptive, grounded, and appropriate approaches to flood resilience that integrate local knowledge and collective experience.

Recent scholarships have highlighted the value of harnessing local knowledge in disaster resilience particularly because they enable communities to better contextualize disasters within their social relationships that result in more desired and culturally appropriate responses that addresses local needs and sensitivities (Hirono, 2024; Hiwasaki et al., 2014; Vasileiou, et al., 2022). Nevertheless, while some studies have explored the link between flood experiences and protective behaviors (Siegrist & Gutscher, 2008; Poussin, et al., 2014), these have been limited to the impact of past experiences in flooding to risk awareness and intention to enact protective measures (Lawrence, et al., 2014). This reveals a gap in understanding how local knowledge and experience can influence and shape localized responses or coping strategies for a flood-prone community like *barangay* Tumana. Moreover, a query on how these assets can contribute to formal flood response measures and policies has yet to be undertaken.

3.5 The Value of Informal Social Networks in Times of Disasters

During times of great disruption, when relief and aid from the government cannot immediately reach those affected and access to basic services and infrastructure is even more limited, informal social networks serve as lifelines to cope with the impacts of disasters. These informal community linkages and bonds pave the way in building trust and providing mutual aid and support. Especially for urban-poor communities like *barangay* Tumana, social networks allowed the locals to cascade disaster information and warnings, share food and water, and coordinate evacuation and rescue efforts to support one another.

Studies have shown that communities with strong social networks have fared better during disasters than those with weaker community ties (Bankoff, 2003; 2004; 2007; Chang et al., 2020; Delica-Willison & Gaillard, 2012; Hirono, 2024). For the Philippines, this was especially evident during the onslaught of Typhoon Ketsana (Ondoy) in 2009, especially in the poor communities of Marikina City (i.e., *barangay* Tumana) and Quezon City (i.e., *barangay* Tatalon), both of which are part of the NCR. During this period, official aid was significantly delayed due to impassable roads and damaged infrastructure, and as a result,

residents of these communities organized volunteer rescue operations using makeshift floating devices, shared food, water, and shelters, and relied on word-of-mouth transmission of updates as communication lines were broken (Bankoff, 2007; Huairou Commission, 2009). These localized responses, shaped by collective experience, mutual trust, and social bonds, are essential in disaster preparedness and response, especially when formal aid is unavailable. However, even with evidence showing the value of social networks, collective experience, and local knowledge from past disasters, formal mechanisms for integrating these assets into formal disaster resilience and recovery planning in the Philippines remain uncommon.

3.6 Local Insights and the Cost of Its Exclusion in DRM Policy

Despite the increasing recognition of local knowledge and perspectives in DRM, its operationalization into formal policies remains lacking, which results in interventions that are out of touch with the actual realities, needs, and contexts of the local community. A clear example would be Typhoon Haiyan (Yolanda) in 2013, which hit Tacloban City, and where the government's response was heavily criticized for failing to consider the actual capacities and needs of the local communities. Moreover, the case of Tacloban City offers a widely cited example of ineffective and misaligned risk communication, where many residents failed to evacuate despite early warnings of a *storm surge*⁴. During this time, the term was used in many, if not all, of the early warnings issued by authorities and the media. However, the local people did not understand it because they associated typhoons with strong winds and rainfall, but had no prior experience of a storm surge. This ultimately resulted in thousands of deaths that could have been avoided if communicated in a way that is understood by the people (Lagmay et al., 2015; Lejano et al., 2016). On the other hand, other countries such as Nepal, India, and Bangladesh have shown evidence of more effective risk management through the integration of local knowledge into DRM policies (Paudel et al., 2024). These incidents emphasize the importance of integrating local knowledge, experience, and community-driven approaches in developing contextually appropriate disaster response and risk communication strategies to enhance disaster resilience.

⁴ The abnormal rise in sea level, exceeding high tides because strong winds push water towards the shore.

3.7 Summary of Gaps in Literature

Despite growing attention in CBDRM, several gaps remain both in academic studies and public policy. **First**, authentic insights and perspectives of urban-poor communities like *barangay* Tumana remain secondary, anecdotal, or informal, and are thereby overlooked in literature and policy despite their value in establishing long-term resilience. This is especially true for inquiry on how collective experience and intergenerational flood knowledge can shape protective behavior against flooding. **Second**, local contexts and adaptive innovations that are non-quantifiable but essential factors that influence community dynamics in disaster preparedness are often unaccounted for by statistical models because of their strict reliance on quantifiable factors. **Third**, DRM research and policy development in the Philippines is still largely influenced by top-down, centralized, and technocratic approaches that disregard adaptive, albeit informal, coping strategies that have emerged from the locals' flood experience. **Fourth**, the proper documentation of lived experiences, informal coping, and flood preparedness strategies in the Philippines, which could potentially contribute to establishing adaptive and inclusive resilience policies, remains inadequate. **Finally**, studies integrating social behavior theories and policy analysis are lacking, underscoring a gap in bridging micro- and macro-level perspectives in DRM research for the country. This study addresses these areas by utilizing both frameworks to produce a holistic analysis of community-based flood resilience through a qualitative research design outlined in the next chapter.

Chapter Three: Literature Review

Chapter Summary

This chapter reviewed and synthesized academic and policy literature on disaster risk management, flood resilience, and community-based responses to flooding. It placed emphasis on the valuable yet often overlooked role of local knowledge and collective experience in shaping individual protective behaviors, and potentially, flood resilience policies. It also critiqued the limitations of existing frameworks and highlighted the importance of social networks, collective memory, and participatory governance in establishing community-based disaster resilience. The review also identified gaps in the literature and frameworks, specifically on the lack of recognition and integration of informal (i.e., improvised), community-driven coping and adaptive mechanisms into formal flood resilience policies to support the study's objectives, academic relevance, novelty, and overall research approach.

Chapter Four: Methodology

4.1 Chapter Overview

This chapter provides a detailed description of the study's methodology to collect data, analyze the data, and answer the study's overarching research question. This chapter details the research design, site selection, sampling, selection criteria, data collection tools and methods, and analytical tools. This chapter closes with an examination of the study's theoretical and analytical frameworks (i.e., the Protective Action Decision Making (PADM) Model and the Whole-of-Society (WoS) approach), which serve as the fundamental guide in producing a grounded qualitative analysis for improving flood resilience in an urban poor community, utilizing both behavioral and policy lenses for the analysis.

4.2 Research Design

As noted in previous chapters, climate trends, forecasts, and projections from both national and international surveillance agencies such as the PAGASA and the Intergovernmental Panel on Climate Change (IPCC) have noted that the impacts of typhoons and flooding, among many other hazards, are bound to worsen in the coming years and will be further exacerbated by the rapidly changing climate. Moreover, the literature provides that despite several advancements in technology and infrastructure, disaster preparedness remains challenging for many reasons: complacency, lack of awareness, and, ultimately, the lack of resources and capacity to conduct preparedness measures. One notable gap in the literature is the influence of local knowledge and collective experience on preparedness behavior and how policymakers and practitioners can utilize the same to enhance community-based resilience. To date, studies exploring the influence of local knowledge and collective experience on the preparedness behavior of people against the threat of flood are scarce, and most scholarly works have focused on quantitative hazard assessments and predictive modeling that rely on predefined risk factors and parameters that overlook social and cultural contexts. These technical disaster studies are often based on static assumptions or historical data that do not always account for shifting social and cultural factors that may affect an individual's perception and behavior.

Local knowledge and collective experience are deeply rooted in specific local contexts and are manifested through strong social bonds, shared norms and values, coping mechanisms, traditions and community practices, and collective action. These are difficult to measure quantitatively but are valuable in comprehending a community's risk perception

and resilience practices that have allowed them to adapt to and recover from disasters over time. Local knowledge is continuously evolving and passed over to generations, molded by volatile environments and social and economic conditions. Therefore, focusing on these factors is essential to capture a more context-specific and holistic understanding of how communities cope with certain disasters. Moreover, highlighting local knowledge and experience paves the way for a more people-oriented approach in designing disaster resilience strategies, policies, and programs that ensure the knowledge and experiences of those most affected are not ignored. By and large, blending highly technical quantitative assessments with local insights can lead to more effective, adaptable, and culturally appropriate disaster resilience approaches.

On this note, this study seeks to understand how local knowledge and collective experience can shape a community's flood preparedness activities and how these factors can enhance a community's flood resilience. More specifically, the study aims to answer the central research question: "How can local knowledge and collective experience inform protective behavior and formal policies against flooding?". To answer this research inquiry, a qualitative research design was adopted for this study to effectively capture non-quantifiable concepts and relationships, such as local people's knowledge and collective experience with respect to their protective behavior and practices against flooding. Their perceptions, understanding, and unique experiences of flood disasters guide these elements, and therefore, the data to be collected and analyzed for this study will be best collected through in-depth qualitative methods such as interviews, focus group discussions, and field observations.

The rationale for conducting the research following this approach is that it places emphasis on underexplored factors in flood resilience, such as protective behaviors and motivations, and allows the author to validate theories that try to explain drivers for certain protective actions. Moreover, it allows the author to supplement quantitative findings from previous scholarship to enhance community-based flood resilience policies and practices. This approach is particularly useful for researchers who aim to understand people's motivations, behavior, and ways of thinking that lay the foundation for behavioral responses to varied threats (e.g., natural hazards). Furthermore, the findings obtained from this approach provide a different and context-specific viewpoint to help policymakers, local leaders, and disaster professionals in community resilience-building.

In this regard, this study employed a three-step data collection method, beginning with preliminary semi-structured key-informant interviews (KIIs) with subject matter

experts and local officials, followed by focus group discussions (FGDs) with local representatives and community members, then culminating with field observations within the site. The study was in Barangay Tumana, Marikina City, Philippines, and the data were collected from October until early November 2024. Participants were selected using purposive and snowball sampling methods. This method suits the study's objective as it allows for the collection and analysis of the people's knowledge and experience with regard to flooding in the most efficient way possible, saving time and resources for collecting data from a wide range of individuals in a limited amount of time.

4.3 Study Area

The study is situated in *barangay* Tumana in Marikina City, Philippines, located in the eastern part of the NCR (more commonly known as Metro Manila). The low-lying *barangay* lies along the Marikina River, making it a flood-prone locality measuring 191.40 hectares with approximately 47,500 residents and accounting for 9.6% of Marikina City's total population as of the 2020 census (Philippine Statistics Authority, 2020). This site is one of the city's most flood-prone *barangays* and the third-most densely populated *barangay* in Marikina. The *barangay*'s population has been steadily increasing, growing annually at 0.25 percent. According to the 2015 census, the *barangay*'s population is comprised largely of economically active or potential members of the workforce that constitute a total of 65.68 percent but is also home to a young demographic base consisting of the young dependent population including infants/babies, children, and young adolescents/teenagers that make up 31.83 per cent of the population.

The site was chosen on three grounds: One, because of the frequency and exposure to flooding and other geological and hydrometeorological hazards, two, because of the number of individuals and the socio-economic level of the residents in the locality, and three, the observable determination of the residents to stay and adapt despite the high risk of flooding. Moreover, since larger metropolitan areas such as Manila or Quezon City are too large to explore for the current study, the characteristics of Tumana make it a relevant microcosm of other flood-prone, impoverished, and densely populated areas in Metro Manila and perhaps even other regions that suffer almost similarly during flooding events. Understanding how the residents have adjusted to the threats brought by flooding and recovered from such disastrous events could lead to effective practices that may be replicated in similar urban settings and disaster situations. Ultimately, if Tumana's flood

management and coping strategies prove to be effective, then the area can potentially serve as a model for other flood-prone areas.

4.4 Participants and Sampling

The researcher used purposive and snowball sampling methods for this study. The key informant interviews targeted disaster risk management (DRM) professionals and practitioners with relevant expertise and direct experience on the explored topic. As for the FGDs, the participants were individuals with the characteristics and direct experience of the phenomenon being studied and those who expressed willingness to share information and in-depth insights into the topic. The researcher believes these individuals alone were the most appropriate for the study as they are most likely to provide valuable, rich, and relevant insights in the most efficient way possible. It is crucial to remember that the researcher placed more value on acquiring in-depth and relevant insights than on their generalizability. The selection criteria are established to ensure a well-represented sample for this study, which are as follows:

- ✓ Those who have lived in Barangay Tumana, Marikina, for at least 5 years;
- ✓ Those who belong to youth groups, social groups, or volunteer organizations;
- ✓ Those aged 18 and above.

4.5 Data Collection Procedure and Instruments

Primary qualitative data were collected through preliminary key informant interviews (KIIs) and focus group discussions (FGDs) involving residents of Tumana and city and *barangay* officials. A total of two KIIs and four FGDs were undertaken, involving 33 participants, six (6) of whom were young adults and 27 middle-aged adults. These participants were recommended by city and *barangay* officials. Non-obtrusive field observations were also conducted in October 2024 as part of the research design to collect primary ground information and permit triangulation of findings from the FGDs and KIIs. Disaster information and other figures were collected primarily from existing official documents from the national agencies and the city such as the PSA's Census of Population and Housing (2020), Marikina City's Ecological Profile, the NDRRMC, PAGASA, the Philippine Institute for Development Studies (PIDS), and local news outlets that provide disaster coverage. International sources were also consulted, such as the World Bank, ADB, World Risk Index, and the International Disaster Database (EM-DAT). Secondary sources on *barangay* Tumana and the city's flood history and resilience strategies, such as the city

ordinances, flooded maps, Family Disaster Plan, and Marikina City's Flood Protocol, were mostly limited to what the city government has provided through their website and the Disaster Risk Reduction and Management Office (DRRMO).

4.5.1 Semi-structured Key Informant Interviews

The preliminary key-informant interviews provided the researcher with initial information on the ongoing risk communication practices and flood preparedness initiatives organized by the local government with and for the local community. Moreover, key informants from the local government helped identify ideal locations for field observations and served as essential links to the other participants with respect to the selection criteria developed for the study.

Two key informants, a local disaster management practitioner and a local government official, participated in the study. The interviews lasted an average of 95 minutes and were conducted in the interviewees' respective offices to ensure their comfort and privacy. With the help of the key informants, purposive snowball sampling was utilized to gather other participants who fit the criteria and were willing to participate in the study's FGDs.

Prior to initiating each interview, the researcher used an interview guide (Annex A) to explain the purpose of the study, acquire consent from the interviewees to record (audio recording), collect, and utilize their responses for the study, request other relevant public data (i.e., hazard maps, historical data on costs and damages, flood protocols, etc.) to be used as supplemental data for the study, assure anonymity and careful disposal of the data in the completion of the study, and finally, explain the protocols for withdrawal from the interview. The semi-structured interviews aimed to thresh out information such as:

- Response initiatives or crisis management strategies implemented during devastating flooding incidents in the area in the past;
- Current flood preparedness strategies and initiatives employed by the local authorities that may or may not involve direct community engagement and participation;
- The current risk communication strategies and warning systems, particularly for flooding, that are utilized by the local authorities;
- The effectiveness of these strategies in reaching and encouraging flood preparedness behaviors of residents in *barangay* Tumana (if available);

- The challenges encountered in implementing these strategies and potential areas for improving community-based resilience efforts.

4.5.2 Focus Group Discussions

Focus group discussions (FGDs) were also employed for this study because they offer several advantages in qualitative research, especially when exploring complex topics that cannot simply be computed or quantified, such as knowledge, experience, and behaviors. In previous research, FGDs have enabled scholars to gather diverse data in a group setting that is flexible enough for participants to build on each other's responses and recall individual and shared experiences, providing richer insights for analysis that may otherwise be unattainable in individual surveys and interviews. **Table 4** below presents the total number of FGDs conducted, along with the type and number of participants that comprise each group.

Table 4
Summary Table of FGD Sessions and No. of Participants

FGD Group	Number of FGDs Conducted	Number of Participants
Young Adults Group	1	6 participants
Community Group (Mothers)	1	7 Participants
Local Volunteer Group (Middle-aged Adults)	2	11 Participants
		6 Participants

A total of four FGDs were conducted involving young adults and middle-aged adults who have been long-term residents of *barangay* Tumana and are part of youth, socio-civic, and/or volunteer groups. Each FGD lasted between one and two hours, with no more than 11 participants to maximize engagement and capture holistic and in-depth insights about their experience in flooding.

FGDs were particularly effective because they allowed for the voluntary participation of residents from different socio-economic and demographic backgrounds. This allowed the researcher to capture a wide range of experiences and perspectives in a time-efficient manner. FGDs for the study enabled the respondents to interact, share personal stories, recall community experiences, and highlight practices that may have influenced their protective behaviors during severe flooding in Tumana. Through this approach, the author maximized data collection while minimizing logistical expenses and ensuring the findings

were based on the residents' lived experiences. To sum up, FGDs were a practical, effective, and efficient method to gather data for this complex subject.

Prior to initiating each FGD, the researcher used an FGD guide (Annex B) to explain the purpose of the study, acquire consent from the participants to record (audio recording), collect, and utilize their responses for the study, assure anonymity and careful disposal of the data in the completion of the study, and finally, explain the procedure for withdrawal from the session. The FGDs aim to thresh out in-depth insights on matters such as:

- Their perceptions of flood risk and past experiences with flooding;
- Their experience and emotions in times of the worst flooding incidents in the area;
- The preparedness and protective actions/behaviors they have taken in the past incidents of flooding and the motivations (that promote) and setbacks (that discourage/delay) behind these actions;
- The sources of disaster/flood information that they rely on and are freely accessible to them, along with those that they relied on but are no longer available to them;
- The channels and modes of communication that they rely on and are freely accessible and usable to them, along with those that they relied on but are no longer available to them;
- The challenges they have encountered in communicating/sharing or receiving disaster/flood information with others and the local government;
- The flood warnings/announcements/other disaster information content they are consuming;
- Their recommendations for other individuals who may have or have already gone through the same flood risks.

4.5.3 Field Observations

Finally, the non-obtrusive field observations were also conducted to capture a holistic understanding of the local knowledge, attitudes, behaviors, culture, practices, and ways of thinking of the residents living in *barangay* Tumana, Marikina. Since the study intends to interview and observe a group of people who are part of a marginalized (low-income) segment of society, the researcher acknowledges the need to be sensitive to this condition. In this regard, approaching the target participants directly and alone may be futile and socially unethical. For this reason, upon completing KIIs and FGDs, the researcher requested permission and support from the local government to conduct actual field observations with a local guide who was willing to participate in visiting the most flood-prone areas within *barangay* Tumana. The areas visited were the lowest-lying areas in Tumana, which the participants in the KIIs and FGDs commonly mentioned. The researcher

conducted the field observations with the endorsement and support of the city mayor, the *barangay* captain, and a representative from the local government of *barangay* Tumana.

4.6 Ethical Considerations

4.6.1 Permissions and Endorsements from the Local Government

The researcher had to obtain proper endorsement and approval to conduct the research from the local chief executive (city mayor) of the City of Marikina and the *barangay* captain (village leader) of Barangay Tumana. This was done to ensure transparency and accountability to the local government and the intended target participants of the study. Furthermore, acquiring these gave the researcher the legitimacy and credibility to gather willing participants and conduct efficient data collection. As such, the appropriate correspondences, such as request letters and endorsements, were drafted and submitted to the city and the *barangay* before starting the study. Upon acquiring permission and endorsement, the researcher began the three-phase data collection accordingly.

4.6.2 Interview and FGD Protocols

Before initiating any of the interviews and FGDs, the researcher began by explaining the interview or FGD protocol, which contained elements as follows:

1. A brief self-introduction, affiliation, and explanation of the purpose of the study;
2. Acquisition of consent from the participants to record (audio recording), collect, and utilize their responses for the study;
3. Request other relevant public data (i.e., hazard maps, historical data on costs and damages, flood protocols, etc.) to be used as supplementary materials for the study, if available;
4. Assure anonymity and careful disposal of the data in the completion of the study;
5. An explanation of the protocols for withdrawal from the interview or FGD.

As the data collected for this study are mostly based on the lived experiences of real people, it was essential that the researcher exercised transparency and that the data be treated with a level of sensitivity and utmost consideration for the safety of the participants. For this reason, it was essential that the researcher clarify to participants how their data would be collected and stored, who would have access to the data of this study, how the data would be reported using aliases, and how the results would be presented in a master's thesis research.

The researcher personally facilitated these discussions and assured participants that their individual responses and identities would only be utilized for this study and would not be disclosed beyond the research scope. Providing this preliminary information to the participants initially assured them of their full autonomy, safety, and well-being during each session and allowed the researcher to establish a good rapport with them.

4.6.3 Confidentiality and Data Protection

To protect participants from discrimination or other potential adverse outcomes from disclosing their information and participation in the research, this research adheres to the principles of anonymity, data protection, and confidentiality upheld by the Philippines' Data Privacy Act of 2012.⁵ The data collected for this study will be stored in an encrypted device accessible only to the researcher to eliminate the risk of unauthorized disclosure and confidentiality breaches. Data collected from the study will then be disposed of appropriately upon completion.

4.7 Data Analysis and Theoretical Frameworks

The primary qualitative data collected from the KIIs, FGDs, and field observations were transcribed and coded using MaxQDA. A two-step analysis was implemented to get a holistic understanding of the residents' local knowledge, collective experience, and protective behavior against the threat of flood. First was a classical content analysis to identify recurring and/or dominant themes, patterns, and trends at the surface level of the textual data. Next, a thematic analysis was conducted using Linden and Perry's (2012) PADM model as the overarching framework. Finally, formal (policies, protocols, and strategies) and informal (local evacuation practices, communication strategies, local adaptation strategies, and coping mechanisms) that support community-based flood resilience were identified with reference to the WoS approach.

4.7.1 The Protective Action Decision-Making (PADM) Model: Behavioral Lens

The PADM model developed by Lindell and Perry (2004 & 2012) is a well-known behavioral framework of analysis for understanding how individuals process risk information and decide on taking protective actions to respond to environmental hazards like floods. It outlines the complex interaction between disaster information and warnings

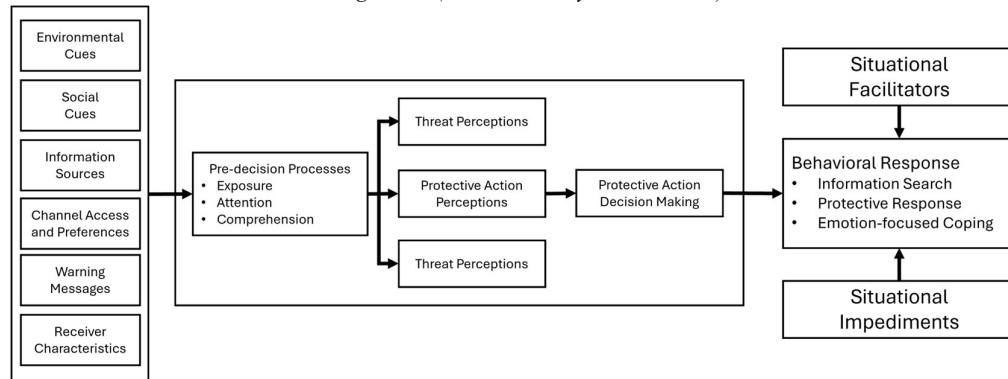
⁵ Data Privacy Act of 2012, Rep. Act No. 10173, (Aug. 15, 2012) (Phil.), <https://www.officialgazette.gov.ph/2012/08/15/republic-act-no-10173/>

delivered through risk communication, social and environmental cues, the comprehension of information through cognitive processes, and eventually, translating a decision into a behavioral response. **Figure 7** below provides a clear illustration of this decision-making process.

It posits that a person's protective decisions are not reflex reactions to formal warnings, but rather, are products of how people perceive risks, interpret their surroundings, and evaluate the trustworthiness and urgency of various information. The model is a widely used framework, particularly because it integrates social, environmental, and psychological facets of decision-making and reiterates that actual behavioral responses to threats are not only shaped by official warnings or recommended protective action, but are essentially influenced by environmental, social, and sometimes, even cultural contexts. The core components of the PADM theory can be divided into three: the information sources and channels, the cognitive processes, and the behavioral response and feedback.

Figure 7

The Protective Action Decision-Making Model (Lindell & Perry, 2004 & 2012)



Note. This figure was illustrated by the author and adapted from the information flow in the Protective Action Decision-Making Model of Lindell & Perry, 2004 & 2012, p. 617

The first part has to do with the sources of and ways to receive information (e.g., social and environmental cues, official warning messages, channels, preferences, and the characteristics of the individual). The second focuses on the cognitive processes: the pre-decision processes (where information is received and comprehended by the individual), the formation of risk and action perceptions, where the individual establishes their perception of the threat (i.e., likelihood and severity of the hazard), protective action (i.e., evaluation about the effectiveness, cost, and feasibility of protective actions), and stakeholders (i.e., their overall trust and confidence in the authorities that issue the warnings or recommendations). This process is essential in forming the individual's risk perception and

in coming up with the *decision set* of protective actions that can be taken to protect themselves from the threat. Finally, the third cognitive process involves the actual protective action decision making, where an action plan is derived based on the integration of the risk information received, perceptions formed, and other socio-economic considerations that can either enable or hinder the implementation of protective action/s. The final part focuses on the behavioral response, which basically is the implementation or operationalization of the protective action that was deemed suitable and feasible by the individual. Lindell & Perry (2004 & 2012) also note that the outcomes of the behavioral response actions (whether they are successful or unfruitful) can yield lessons learned that contribute to future decision-making and behavior of an individual or a community.

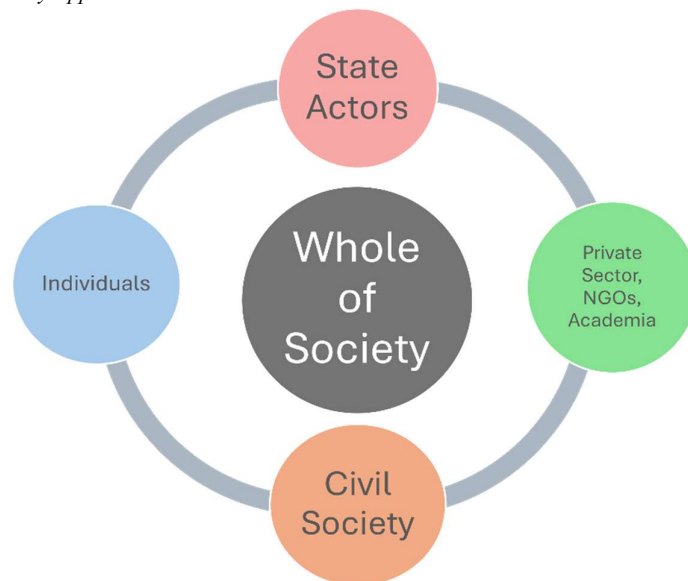
This framework is relevant to the study's case, *barangay* Tumana, where residents have relied on their past disaster experiences, collective knowledge, and neighborhood ties to assess whether to prepare for or evacuate from floods. It is also relevant for flood-prone contexts where decisions must be made in a timely manner, despite highly stressful and unpredictable environments. These communities have limited access to basic services and digital infrastructure, often isolating them from official warning systems, which means that they pay more attention to local environmental signs, such as the flood water rising on the streets or social cues such as word-of-mouth warnings from neighbors or their behaviors, to determine protective actions. This theory provides an avenue for the holistic and logical exploration of how residents receive and interpret these cues and decide on protective actions based on their personal and collective capacity to respond to flooding through recollections of past experiences. Utilizing this framework is valuable in that it can reveal the disconnect between how the government views flood risk and more grassroots and localized interpretations of flood risk. Finally, PADM offers a model that underscores the role of context-specific, collective memories and experiences, and informal social networks in shaping an individual or a community's protective behavior against flooding.

4.7.2 The Whole-of-Society (WoS) Approach: Policy Lens

The Whole-of-Society (WoS) approach is a governance framework advocated by prominent international institutions such as the UNDRR and European Union (EU) (European Commission, 2017). It is a governance principle that has been widely promoted, especially in international disaster risk reduction frameworks such as the Sendai Framework for Disaster Risk Reduction (2015-2030). WoS means to emphasize that resilience is and must not be the sole responsibility of governments alone; rather, it is a shared responsibility

across all sectors and levels of society. WoS emphasizes the genuine involvement of all sectors of society (i.e., government, both local and national, civil society, academia and researchers, private sector, and non-government organizations), particularly in disaster risk management and resilience-building. The framework is grounded on principles of inclusivity, participatory governance, and multi-sectoral collaboration in building safer and more disaster-resilient communities (UNDRR, 2021). The framework (see **Figure 8**) is particularly relevant for this study in that it emphasizes the importance of community voices in disaster planning and implementation, and the need to draw from local knowledge and local coping capacities in managing disaster risk.

Figure 8
The Whole-of-Society Approach



Note. This figure was illustrated by the author and adapted from UNDRR.

This framework serves as the central policy lens in analyzing the current trends in the Philippines' DRM governance landscape, to determine ways to improve them and enhance community-based resilience. This framework emphasizes a multi-layered collaboration across local and national governments, the private sector, civil society organizations, and all individuals within society. It upholds the value of participatory and inclusive governance, which treats each sector as equally important and with the potential to collaborate in policy development, implementation, and improvement, thereby enabling horizontal and vertical coordination during times of crisis.

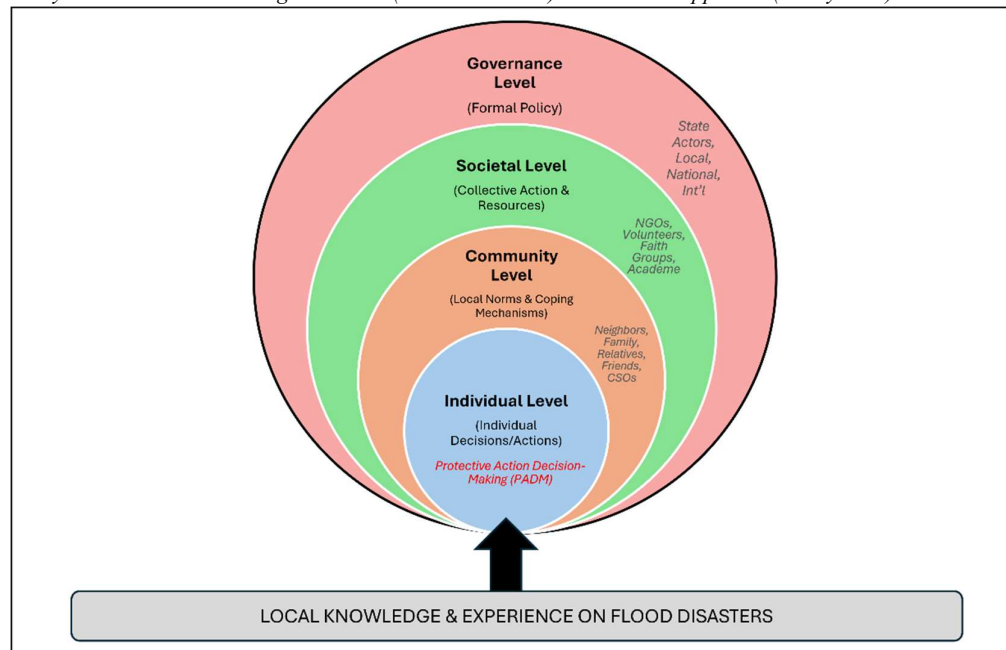
WoS helps investigate whether local actors and their informal collective knowledge, voices, and practices inform actual DRM policies and protocols being implemented on the

ground. In the Philippines, these DRM initiatives, in that they are centralized and top-down in nature, often fail to recognize and integrate local experiences and perspectives in DRM policy and practice (Gaillard & Mercer, 2013). In this regard, the WoS approach helps underscore the need for equal representation and inter-sectoral collaboration among all sectors of society rather than relying on systematic, rigid, and vertical schemes of command and control (European Commission, 2017). Disaster policies are made even more effective when they incorporate local perspectives and practical knowledge rather than being purely technocratic and theoretical (UNDRR, 2021). The WoS framework advocates for the genuine participation of all sectors of society, the integration of local knowledge, and the amplification of the voices of marginalized sectors in co-creating context-specific, relevant, and sustainable flood adaptation practices.

4.7.3 Synthesized Framework for Analysis: The Behavior and Policy Nexus

Figure 9

Analytical Framework Linking the PADM (Behavioral Lens) and the WoS Approach (Policy Lens)



Note. Illustrated by the author to guide the overall thematic analysis of the study.

Utilizing both the PADM and WoS approach for the study provides a dual-lens analytical framework to gain a comprehensive and holistic understanding of local knowledge and collective experience, and how these come into play in shaping a

community's flood resilience in a flood-prone locality like Barangay Tumana. By applying PADM, the study can reveal how residents interpret flood risk, assess their environments and capacities, and decide on protective measures against flooding, as guided by local cues, past experiences, official information sources, and social networks. Concurrently, the WoS offers a policy lens that helps understand how existing DRM frameworks and policies can be misaligned, out of touch, and disconnected from the lived realities of the communities affected by flood disasters. It can also illustrate the ways in which to integrate local perspectives and lived experiences into formal policy to make them more effective and appropriate through a more participatory approach. This methodological integration of a behavioral lens with a policy lens for this study's thematic analysis is best illustrated by **Figure 9**.

The combination of these frameworks not only helps illustrate why people act the way they do in the face of flooding but also how policies can be informed and aligned with local contexts and community-based practices to produce appropriate and adaptive flood resilience strategies. To this end, the study contributes to existing literature on community-based disaster risk management (CBDRM), particularly on growing literature that advocates grassroots and participatory approaches in DRM planning and policymaking. Ultimately, this research offers a unique approach to understanding and enhancing community-based flood resilience by linking realistic behavioral insights with a comprehensive policy critique.

4.7.4 Thematic Analysis

Thematic analysis is a method used for identifying, analyzing, and unraveling patterns of relationships within the data (Braun & Clarke, 2006). The basic principle of this approach is finding the underlying similarities, differences, processes, and other comparisons within the data and involves clustering these concepts into categories or themes to determine their patterns or relationships and explain the phenomenon being studied (Figgou & Pavpoulos, 2015). In doing so, researchers can draw meaningful conclusions about the data and comprehend what it means, along with its potential impact, by revealing important underlying factors within the textual data, such as dominant themes, recurring patterns, trends, or other key messages. Thematic analyses focus on the latent content and explore deeper meanings and significance that the textual data represents. Guided by this, the researcher utilized a 5-step process for thematic analysis, beginning with a) data familiarization, b) code list development and coding, c) theme identification and definition, d) thematic mapping and analysis, and e) drafting the analysis.

The qualitative data collected for this in-depth qualitative case study will be analyzed using thematic analysis because this form of analysis provides a straightforward and flexible approach to analyzing the varied data types collected for the study. Moreover, thematic analysis provides the researcher with an organized and systematic process of exploring the patterns and relationships to support categorizing themes related to key concepts such as local knowledge, collective experience, and culture. Finally, this form of analysis works best for the study as it provides a flexible and inductive way of analyzing the various data, allowing the themes to emerge authentically and thereby providing a close representation of the participants' perspectives and experiences.

The thematic analysis for this study was guided by the Protective Action Decision-Making (PADM) Model (Lindell & Perry, 2012) and the Whole-of-Society (WoS) Approach (Kjellén, 2023), a widely known framework for participatory governance frequently promoted by international organizations such as the World Health Organization⁶ and the United Nations' Sendai Framework⁷. As the study explored elements such as local knowledge, experience, risk communication, and people's protective behavior against flooding, the factors and components of the PADM model best capture the analytical points intended for the study. Moreover, since the study aims to understand how community culture, social networks, and dynamics come into play in establishing formal flood preparedness strategies, the WoS approach will also be utilized as a basis for the analysis. The PADM and WoS models illustrate the interrelationships among these factors and lay out a concrete and well-founded framework to produce an insightful and logical analysis of the collected data, mixing behavioral and policy lenses.

Step-by-Step Method for Thematic Analysis

The thematic analysis process for this study was guided by Braun & Clarke's (2013) 6-step data analysis process, with minor adjustments that were deemed necessary for the research. More specifically, the process utilized for the study is as follows. For reference, the Code Book and a comprehensive explanation of the Analytical Method can be found in Annex C and D, respectively:

⁶ World Health Organization (WHO). (2020). COVID-19 strategy update. Retrieved from: <https://www.who.int/publications/i/item/covid-19-strategy-update>

⁷ United Nations Office for Disaster Risk Reduction. (2015). Sendai Framework for Disaster Risk Reduction 2015–2030. p. 13, under section III: Guiding Principles, point d. United Nations. <https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030>

- 1) **Data familiarization** – In the early parts of this stage, the researcher needed to revalidate the transcripts collected from the FGDs and KIIs to ensure there were no missing, unclear, or misleading transcriptions collected from the sessions.
- 2) **b** – Once the researcher was familiar with the data, labels and codes were assigned to segments in the transcripts that were deemed relevant to the research question of the study using open coding.
- 3) **Refinement of codes** - Once the initial run was completed, a comprehensive code list was generated. The comprehensive code list was then refined to reduce duplication of codes and consolidate the codes used for the study.
- 4) **Code categorization and the search for themes** – In this stage, the codes were grouped and categorized into more general themes that captured a clear relationship between the codes. Deductive thematic analysis guided by the PADM model and WoS was conducted to find prominent themes from the data.
- 5) **Review and refinement of themes** – To consolidate and analyze the data even further, the themes that were generated were reviewed and revised to ensure that there was no duplication and that the themes were clear, distinct, and relevant to the research question of the study.
- 6) **Naming and defining themes** – The final step of the thematic analysis used in the study was to define each theme, find supporting and/or contradictory evidence for each theme, and explain their relevance to the research question of the study.
- 7) **Report generation** – The findings generated, including the themes, sub-themes, and supporting evidence for each theme, are then laid out in the next section of this chapter.

Through this analysis, the researcher intends to investigate how local knowledge and collective experience shape an individual's protective behavior against flooding as guided by the PADM model and examine how local knowledge and collective experience can be integrated into flood resilience policies using the WoS approach.

Chapter Four: Methodology

Chapter Summary

This chapter explained the rationale behind the research methodology and presented the qualitative research design and methods used to collect and analyze data to address the study's central research question. It detailed the site selection, selection criteria, sampling method, data collection procedure, and tools, including key-informant interviews (KIIs), focus group discussions (FGDs), and field observations. This chapter also outlined the study's ethical considerations, specifically the permissions and endorsements acquired from the local government, interview and FGD protocols, and confidentiality and data protection for the participants. This chapter also presented theoretical frameworks – particularly the Protective Action Decision-Making model (PADM) and the Whole-of-Society (WoS) approach – which formed the study's overall analytical framework that integrated both models to offer a behavioral and policy perspective to the thematic analysis.

Chapter Five: Analysis and Findings

5.1 Chapter Overview

This chapter begins with a recap of the study's purpose, research question, data collection methods, and the steps taken to ensure a thorough and holistic analysis of the data through the analytical plan. It then outlines the study's findings, particularly on how local knowledge and experience shape their protective action against flooding and how the same can be integrated into official flood protocols, with respect to the analytical frameworks (i.e., the PADM model and the WoS approach), providing a behavioral and policy lens in the analysis.

5.2 Study Context

The purpose of the study is to understand how local knowledge and collective experience shape individual protective action against flooding and how these assets influence formal flood resilience plans, policies, and protocols through participatory governance, particularly through the WoS approach. To achieve these goals, the study asks the central question: *"How can local knowledge and collective experience inform protective behavior and formal policies against flooding?"*. To answer this question, the researcher employed a qualitative research design utilizing KIIs, FGDs, and field observations, harnessing text-based data (i.e., transcripts) which was then analyzed guided by Braun & Clarke's (2013) 6-step thematic analytical process using the analytical software, MaxQDA, and guided by the PADM model of Lindell & Perry (2004 & 2012) and the WoS approach.

5.3 Persistence and Attachment to Place: Why Tumanians Choose to Stay

Life and Normalcy in Tumana

To provide a better assessment of how local knowledge and past experiences of flooding have shaped how Tumanians⁸ perceive and respond to the threat of flood, it is essential to first know how they live their lives and conduct their daily activities during times of normalcy. This section provides a baseline for comparison and intends to help illustrate their ways of living and how their practices and norms have formed their collective experience, local knowledge, and social networks that are manifested during times of flooding.

⁸ A term used by the residents of Tumana to refer to themselves as a resident/community.

FGDs and interviews have revealed that normal days in Tumana are very busy and lively, with many people seen walking and doing their personal matters in the streets. The kids go to school, and the parents head to work or do their chores like laundry while making use of the streets as an extension of their homes. Bystanders can be seen chatting and playing in the streets, while other neighbors gossip or unwind by gambling or drinking alcohol.

For me, during ordinary days in our community in Block 41, everyone takes out their own laundry. Yes, because sometimes, the working parents' laundry time is every weekday, not during the weekends, because those are saved for rest days. So each household brings out their own basins. Also, during weekends, many residents do their laundry in Tumana, so the water doesn't reach our area anymore, like droplets coming out of the faucet, so we do our laundry during the weekdays, and of course, this is accompanied by gossiping. ... Then we see students walking, everyone has their own agenda. Things are simple here in Tumana. (FGD Participant, Young Adults Group)

Normal days here in Tumana are very lively, especially for this part of Tumana, besides the area in the village [La Vista], life is simpler here because the standard of living is lower. So the people here don't really have a high cost of living. That's why people here are happy with a simple way of living. (FGD Participant, Young Adults Group).

The FGDs further revealed that Tumanians really appreciate and value the simple life in Tumana despite the risk of flooding. The people have come to learn that life in Tumana entails living with the flood; this is common knowledge for the residents. The study found that Tumanians have four (4) main motivations behind their decision to stay and reside in the area despite its susceptibility to intense, frequent, and recurring flooding, and these motives are discussed in the succeeding section of this chapter.

Familial roots and relations in the area and being "used" to the flood

Many of the respondents noted that they have stayed in Tumana since birth, as they were either brought to the area by their parents or adopted by relatives who lived in the area and grew up in Tumana since then.

I lived here since I was born, and my entire family lives here as well. (FGD Participant, Local Volunteer Group A)

Since they were small, my parents had already lived here, and then, of course, until I was born, we stayed here. (FGD Participant, Young Adults Group)

Moreover, the FGDs revealed that many of the residents have relatives or family members also living in the area, and/or that they have married and built their families in Tumana. The concept of establishing familial roots tied to a location by building and raising a family in the area and ensuring proximity to the family has proven to be a consistent factor in motivating Tumanians to stay despite flooding. This contributes to their sentimentality

and attachment to the place and reminds them that, regardless of the challenges of living in the area, they are “used” to the flooding and that Tumana is their home. For these reasons, many of the residents continue to stay and live in Tumana despite the area’s susceptibility to flooding and the losses that entail.

The Tumanians are so used to the flooding here. That’s one more thing, the kids, “oh my! It will flood again! We’re going swimming again!” (laughs) like that. So, it’s like, flooding here no longer makes us nervous. (FGD Participant, Young Adults Group)

We decided to live here in barangay Tumana ... uhh ... because when you say “[Redacted last name]” here, our family is known to be long-term residents of the area. Even when my parents, aunts and uncles were small, they already lived here. (FGD Participant, Young Adults Group)

For us its... a personal choice, at least for my family. We don’t leave (Tumana) anymore because I know this is our home. (FGD Participant, Local Volunteer Group A)

For me, the reason why we don’t leave is because ... the memories that you just can’t leave are here. Even if you want to leave, it’s like... You just won’t want to because you’ve gotten used to it already. We’ve gotten used to the flooding already. (FGD Participant, Local Volunteer Group A)

Low cost of living

Another motivation for the residents to stay despite the risk of flooding in the area is the low cost of living and affordability of housing or rent prices in Tumana. This is a logical motivator, especially since many of the residents in the *barangay* comprise large (i.e., with five members or more) and low-income households that are very sensitive to the prices of essential living expenses, such as that of a house/dwelling, food, schooling, healthcare, among other things. Many of the residents noted the cheap rent, while others who have been living in the area for longer mentioned that they were able to acquire rights to parcels of the land in the Tumana.

... and then the rent prices here at the time were very cheap, and that’s why they really chose to live here without knowing that it floods or that this area is prone to flooding. (FGD Participant, Young Adults Group)

I found my husband here, then we decided to rent a place until we were able to purchase a small house and rights (to the land). Then we decided to stay here. (FGD Participant, Community Group)

The vegetables are cheap, fish is cheap, everything is cheap! Just hope that the vendor doesn’t curse you for asking for a discount. (FGD Participant, Community Group)

It is, however, important to note that prices for rent and housing may be affordable in the area mainly due to the low cost of constructing them. While many of the houses have been built with concrete, many of the houses adjacent to the river and in the lower-lying

areas of the *barangay* are considered informal settlements that have little to no access to basic services and simply cannot afford resilient housing. As such, their dwellings remain weak and vulnerable to disasters such as flooding and even fire because these are made from cheap and light materials. Moreover, relocating to safer, higher ground is impossible for these communities because of the lack of affordable housing options, as well as the high cost of land and properties in other better-situated areas.

Proximity to basic needs

A third reason is the proximity of Tumana to establishments and institutions that provide the basic services that the residents require. Many residents pointed out that Tumana is close to the market, public schools that offer free education, churches, public hospitals, and their place of employment, making it an ideal and convenient place to reside, as it reduces the cost for transportation and education. One participant even noted that if their family is safe and able to have food on their table every day, they are content and happy. By and large, Tumana's proximity to these institutions means that the residents have easy access to the affordable services that they need, which further allows them to reallocate limited household income into more important living expenses such as food. This adds to the simplicity of life in Tumana.

Maybe since it's really close to everything – the market, hospitals, church, the school. So yeah, even though we're flooded here, it's still close to everything. (FGD Participant, Community Group)

They say that the money is here in Tumana. That relief aid is here.. (laughs, and then brushes off the joke), well..this is where they work, it's close to their workplace. (FGD Participant, Local Volunteer Group A)

Just a simple life. As long as my kids are here, we can eat three times a day. At least with that, I am content. I don't look for grand things, I'm fine as long as my family is safe and that we get to eat every day, I'm happy that we are safe from tragedies. That's the best. You shouldn't obsess over material things because they're not really important. What's important is the safety of the family and the food you need to eat. That's just for me. (FGD Participant, Local Volunteer Group A)

Lack of options due to poverty, or Tumana being too established as a residential area

Finally, an interesting motivator, or rather, justification for staying in a flood-prone location such as Tumana, as noted by the respondents, is the inability to make or have any other choice due to socio-economic limitations brought by poverty or because Tumana has long been established as a place of residents for thousands of people that cannot simply be relocated to farther, albeit safer, residential areas.

Well... what I see here in the barangay is that... you can't. You just can't tell people not to live in the barangay because it's too large already. The population is too large so you can't just convince or make people leave. (FGD Participant, Young Adults Group)

Well... from my perspective, everyone wants to leave because, first of all, it floods. But because of poverty, they just can't leave because their workplace [is here], and then of course, the schooling of the children, schools that offer free tuition are located here. If you compare this place with other locations, Marikina is very lucky because there is a government that you can count on, that is there and supporting us. But yeah, they can't find that from a different government. It's not because we don't want to leave, but because we can't, because of poverty that's why this happens. (FGD Participant, Local Volunteer Group A)

These motivations are the main justifications of the residents for why, despite incurring repeated losses from persistent, recurring, and intense flooding in Tumana, they still choose to stay. For these reasons, the community has developed informal and often undocumented coping strategies and adaptation measures that are feasible within their own means to reduce the risk and impact of flooding on their properties and lives.

The Persistence to Stay

As mentioned in previous chapters, *barangay* Tumana is known to be a flood-prone area mainly due to its location being adjacent to the Marikina River and its land area traditionally being part of the river's floodplain, which causes the area to be inundated particularly during times of heavy downpour. Despite physical improvements and infrastructural developments in the area to reduce the risk of flooding, factors such as environmental and socio-economic conditions, along with volatility and uncertainty brought by climate change, continue to expose the community to intense and recurring flooding. To this day, many individuals and families still prefer to reside in the area despite this recurring challenge. The residents of Tumana have found great value in living in the area and have learned to live with the common understanding that the area is susceptible to flooding. This way of living has enabled them to form shared experiences and local knowledge about flooding and has built a cohesive community, which becomes essential for survival during times of flooding.

Tumanians understand that the simple life and low cost of living in Tumana come with a price – living with persistent flooding. Many would say they are accustomed to or simply used to the flooding in the area. However, while they would say this, the same respondents would argue they did not anticipate certain flooding events to be as catastrophic as they were. This goes to show that Tumanians may indeed be used to the likelihood of flooding (i.e., whether it will flood in the area or not), but they cannot predict or anticipate

the severity of the flooding (i.e., how high the flood waters would be, how strong the current, and how long before it subsides). The severity of flooding remains uncertain, and with this uncertainty, information and social ties become even more important, particularly in deciding on protective actions to implement to reduce the impact of flooding

The decision to remain and live in Tumana, despite persistent and recurring flooding shifts the focus from mere evacuation toward flood adaptation. This persistence and the motivational drivers behind the decision to stay demonstrate how Tumanians are not passive residents but rather are actively engaging and compromising with risk and safety. It is essential to understand this context to begin appreciating the role that local knowledge and experience play in shaping how Tumanians perceive, comprehend, and act on flood threats. This interplay between local knowledge and experience and the individual protective behaviors of Tumanians will be discussed further through the lens of the PADM model in the next section of this chapter.

5.4 Local Knowledge and Experience and Individual Protective Behavior:

Behavioral Analysis using PADM

In understanding how Tumanians protect themselves in the face of flooding, the analysis focused on the key elements of the PADM model by Lindell & Perry (2004 & 2012), a framework that illustrates the reflective process of how individuals typically process available information, make decisions on protective actions, and finally choose a behavioral response to disasters or natural hazards. For this case study, the key cognitive processes that take place before the behavioral response were classified into three (3) different phases with respect to the PADM model. These phases were used to categorize the codes and derive the themes for the study: Phase I: the Pre-decisional Phase (information intake), Phase II: the Cognitive Evaluation Phase (assessment of threat and coping capacity, and the search for protective actions), and Phase III: the Protective Action Decision-Making Phase (action plan implementation). From this categorization, three (3) key themes emerged with respect to individual protective behavior of Tumanians: i) **Information Seeking and Sources**, ii) **Risk Perception and Coping Capacity**, and iii) **Protective Action Decision Making and Implementation**, which will be discussed in the succeeding sections of this chapter.

5.4.1 Information Seeking and Sources

The pre-decisional phase focuses on the type and ways in which the residents receive, give attention to, and comprehend information about disasters (Lindell & Perry,

2004 & 2012), and for this study, flooding. For Tumana, the residents receive flood risk information that take the form mainly of *environmental cues* (i.e., what they see, hear, smell, or hear in the immediate surroundings that can signal the beginning of flooding, such as rising flood waters in the streets), *social cues* (i.e., actions or messages that arise from observing the behavior of others, particularly their neighbors, such as evacuation, word-of-mouth sharing of information, or packing of important belongings), and *official warnings* (i.e., messages announcements, or alerts from authorities coursed through official sources or mechanisms like sirens and social or traditional media weather broadcasts). This information source and flow is illustrated in **Figure 10**. Official warnings and alerts are cascaded by both the *barangay* and the city government through public announcements (sirens and roaming megaphones), traditional media (i.e., radio and television), and more effectively, through social media (Livestreaming, Facebook, Tiktok, or Twitter/X).

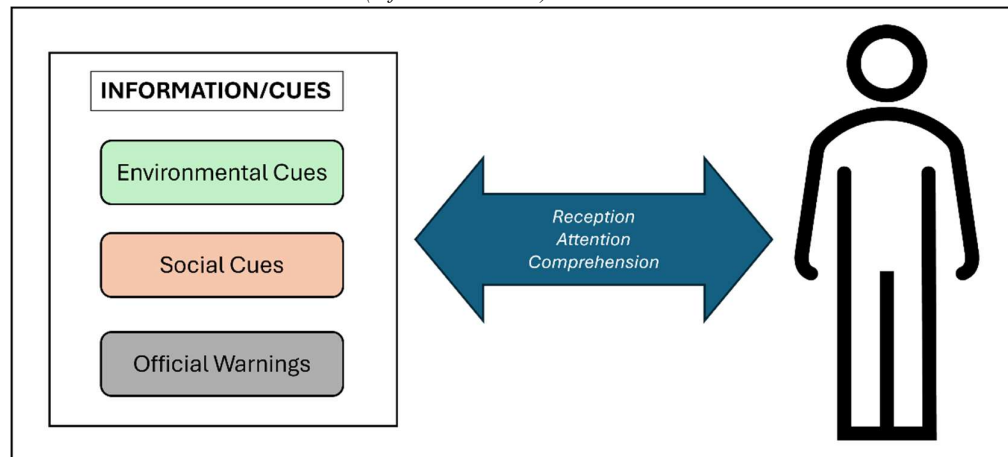
And for others like us, we rely on the [Facebook] livestream of the Sangguniang Kabataan and of the local barangay. We also watch the Marikina DRRMO (Rescue 161)'s live. We monitor them. (FGD Participant, Young Adults Group)

As for us, we can read the Facebook posts of the Marikina PIO, Marikina news, Rescue 161, because that's where you can see when you should be alert, when you need to evacuate, when you should start packing your things. Us Tumanians, we're used to it, we're immune to this [flooding]! (FGD Participant, Community Group)

Just when it's about to flood, the relief and support aren't there yet. It's their [local government] announcement that we hear. Their announcement that, "oh, once the water rises, evacuate already. Don't wait for the second alarm, evacuate as soon as you can, don't wait for the water to rise even higher". (FGD Participant, Community Group)

Figure 10

PADM Phase 1: Pre-Decisional Phase (Information Intake)



Note. This figure was illustrated by the author. It is a reinterpreted diagram that fits the context of Brgy. Tumana was adopted from the PADM model of Lindell & Perry (2004 & 2012).

Although official broadcasts are sought and useful, environmental cues, such as monitoring the water level in the nearby creek, as well as social cues such as word-of-mouth signals exchanged with relatives and neighbors, are more accessible and trusted, thus utilized heavily by the local community, especially for those that have little to no access to the internet or have televisions.

It's funny because the men here, they would just stand at the creek, watching with crossed arms and waiting, anticipating. They would be standing there at the creek watching. Even me, I would go out, get an umbrella, head to the creek and take a peek. It's like our routine, whenever there's an official announcement or a typhoon, "let's go down [to the creek]!". (FGD Participant, Community Group)

Especially the people here in my area, each one would find a way to monitor the water from the river, each one would go to the river and look at the water level. Then they would gossip or tell their neighbors – "hey! The level is already high!", just like that, "the water level is high! It reached the old barangay, and it will reach us soon!" (FGD Participant, Young Adults Group)

Yeah, there's a "patrol" in the river. There are people that go there, usually they're the bystanders, because they have the time and capacity to go there immediately and watch. So, of course, we would believe them since that is a time of disaster. They would go around and tell everyone about the water level. (FGD Participant, Young Adults Group)

The information coursed through word-of-mouth mechanisms is not limited to warnings about the flood; these also include advice about evacuation conditions, relief, and requests for assistance/rescue.

What our neighbors do, whatever time it is, they would ride their motorcycles, and they would go around the streets that are already flooded, because even them, they will also be trapped including their vehicles if they don't go around and look. They're the ones that would tell us, "there's flooding in this street, evacuate your vehicles already!" (FGD Participant, Young Adults Group)

What's funny is the relief. When one of us acquired relief outside, they will scream and shout, "Everyone! Get out of your homes. There's relief over there. They're giving out rice, hurry!". Even if it's just porridge, "Oy, get in line, hurry, there's porridge and chicken soup there!", especially the kids, you can count on them. (FGD Participant, Community Group)

And then there's so many people screaming and shouting already, "hey, it's the second alarm already, pack your things and let's go [to the evacuation center]! Because there's a lot [of people here], so it [the sirens] won't reach everyone if no one screams or shouts. The sirens here emit a low and weak sound, so it's up to the people [to shout], "oh, it's the second alarm, get your things ready already!", it's great! (FGD Participant, Community Group)

This reliance on word-of-mouth communication and information also shows the level of trust and sense of community of the Tumanians. They have a common understanding that they must help and look out for one another, and that during times of flooding disasters, they must rely on one another to survive and reduce the impacts of flooding, especially in

the exchange of information. One participant even noted that keeping crucial information about the flood or relief operations to yourself is looked down upon by the community, and that information like this must be shared once received; otherwise, keeping the information will subject one to public scrutiny and gossip. This was particularly evident in the anecdotes shared by participants of the Community Group. This group comprised large and low-income households that resided in one of the lowest-lying areas of Tumana, Creekside, which is one of the first areas to experience flooding before any other areas in the *barangay*.

Yeah, our mouths are the megaphones even though we don't have actual megaphones. It's very loud, I'm telling you! Once one of us gets some relief, everyone else follows. Here in Tumana, no one takes information for themselves. No one. If you receive information and you don't call out to your neighbors, you're dead! (laughs) You will be the target of gossip. There is no selfishness here, it's looked down upon. (FGD Participant, Community Group)

We would really knock on their doors, "the water reached us already, get up! Wake up!", if we didn't care [about each other], if this were a subdivision or private village, you won't be so concerned about your neighbor, if they get flooded, you're on your own. But us here, it's not like that. We're really close here, like sisters, but of course, if you see that one of us is not yet packing their things, "hey, what the heck! Get moving! Pack your things!". (FGD Participant, Community Group)

For example, when we're done packing our things here, we will shout to our neighbor, "hey, are you ready to head to the evacuation center? Are there things there that still need to be packed?" Especially the men here, they're really helpful. (FGD Participant, Community Group).

Once these types of information are received, the ability of an individual to pay attention to these messages depends on their characteristics (i.e., physical abilities which tells whether or not they can hear or see the messages, cognitive abilities that can enable or hinder their understanding of the messages, and their socio-economic background which tells whether or not they can have access to the platforms in which these messages are delivered). Finally, comprehension entails the conceptualization of the meanings and implications of the information about the hazard they received on the individual, which transitions to the beginning of the cognitive evaluation phase.

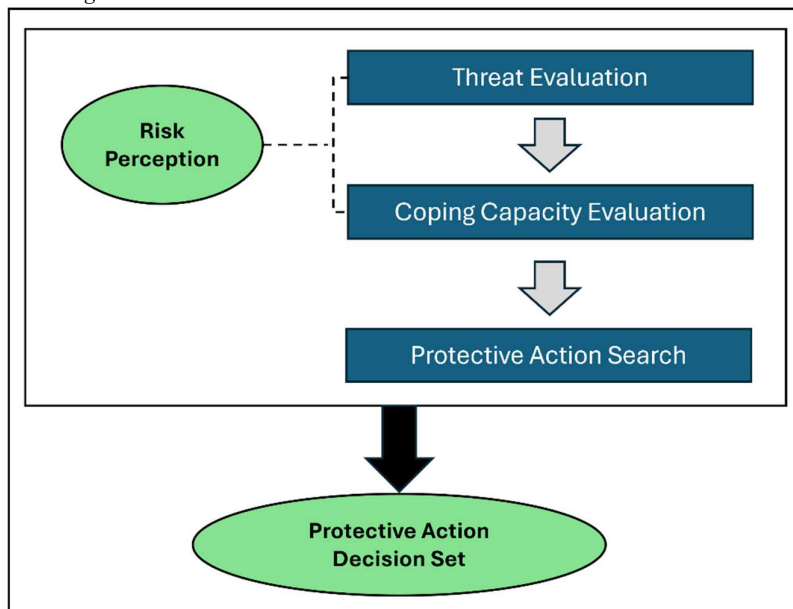
5.4.2 Risk Perception, Coping Capacity, and Search for Protective Actions

In the cognitive evaluation phase, the individual begins by interpreting the implications of the threat by evaluating the i) *likelihood* and severity (i.e., the risk) of the flood, ii) their consequent *vulnerability* to the threat (i.e., threat perception), and iii) their *capacity* to cope with the threat. This process is concluded with a *search for possible protective actions* to reduce the impacts of flooding. Refer to the diagram below for a visual representation of this process.

In this process, individuals think about the expected personal impacts of the disaster, whether physical or psychological (i.e., death, injury, property damage, trauma, or disruption to daily activities) and their capacity to withstand and respond to the impacts of the disaster, which guide their decision to respond or make long-term adjustments. For Tumanians, this process begins with an assessment of the flood threat and their coping capacity, which forms their *flood risk perception*. This is followed by a search for all available protective actions they can take (*what actions can I take to protect myself from the flood?*) to protect themselves from the flood. The outputs from this process are the individual's *risk perception* towards flood and a *decision set* of available protective actions that the individual can take against their perceived risk (see **Figure 11**). These outputs then form the basis of their decision on which protective actions to take (or not take), how quickly, and in what order to implement them to protect themselves.

Figure 11

PADM Phase II: Cognitive Evaluation Phase



Note. This figure was illustrated by the author. It is a reinterpreted diagram that fits the context of Brgy. Tumana was adopted from the core perceptions of the PADM model of Lindell & Perry (2004 & 2012).

The findings of this study revealed that individual **socio-economic** (i.e., physiological capacities, family structure, social networks, financial capacity, among others) and **psychological** (i.e., fear and trauma, recollections and memories of flooding, and past experiences) factors play a big part in influencing the threat and coping evaluation process, consequently affecting their decision on actions to take following this process.

Assessment of Flood Threat & Coping Capacity

Firstly, in evaluating the perceived threat (i.e., risk perception), Tumanians would seek official warnings, social, and environmental cues to determine the severity and likelihood that the flooding disaster will affect them and cause damage to their lives and property (i.e., vulnerability), and their coping capacity. This evaluation process is influenced by *socio-economic factors*, like their **physiological characteristics and cognitive capabilities**, which constitute their age, gender, and physical challenges that determine their ability to understand the threat and to do something about it.

I remember, the water level at the time was already at my waist. Of course, I was just a kid then, I was very small, and the water was already at my waist, and I carried so many things, a backpack filled with clothes that my mom packed for me and my sibling when she evacuated us to our neighbor's house. ... And then, I remember during that time, I had no choice. Mama was not around, and my younger sibling (4 years old) was there with me, I was carrying him. I said, "mama's not yet around, where is mama?". Of course, I was nervous and anxious because the flood water was very high already, if it reached us, then we would die. So at the young age of 7, I said, "ah, alright, this is what I will do". I had a backpack which I put in front of me, then I carried by sibling on my back. I said, "we will climb upstairs, to the second floor of this house". (FGD Participant, Young Adults Group)

Another factor that affects this evaluation process is their **financial capacity** (i.e., whether they should evacuate and replace their belongings if they get flooded or stolen, or stay to safeguard their properties and risk being trapped in the flood).

My very first traumatic experience was when my aunt almost got trapped inside her house because she was busy packing and lifting their personal things to higher ground. (FGD Participant, Young Adults Group)

They're the ones that tell us, "The flood is there already! Evacuate the vehicles!" Then, when we get to put the cars on higher ground, we will just walk back home. If the flood reaches our area, then we will swim back home. (Laughs). At least we were able to evacuate our vehicles, those are expensive. (FGD Participant, Young Adults Group)

During Typhoon Carina, I went back home for my motorcycle. I checked the house to see if it was still okay, then left. A few moments later, I came back to the house, but I could no longer cross Farmer's [main road], so I went back to the house with my motorcycle. ... I was forced to find help to lift the motorcycle to the second floor. There were so many people who carried it! (FGD Participant, Local Volunteer Group B)

In evaluating the threat and their coping capacity, individuals also factor in the characteristics of their **dwellings** (i.e., whether they live in an area in the *barangay* that is low-lying and subjected to quicker and higher inundation, or relatively higher).

... and as for others, they just have courage, that's it, even if their house is low (i.e., single floor), they would just stay at home because they know they have neighbors who let them

come over and stay on higher floors. Since here in Tumana, we're used to helping each other out. If your house is just low, you can temporarily transfer to the next house, or stay at the roof of your neighbor. (FGD Participant, Young Adults Group)

... but ever since them, since I lived here in Tumana, we got used to it. I would say, "Oh, that's just a flood, that's just there, but us (referring to her family), we will just stay here, in this high area. We're safe here". Im fine with that, that's what I believe for my family. (FGD Participant, Local Volunteer Group A)

Moreover, their **social networks** (i.e., how their friends and neighbors perceive the threat and whether it must be addressed or dismissed), and **family structure and relationships in the household** (i.e., whether they have vulnerable members such as PWDs, the elderly, children, or pregnant women they must prioritize) also influence this evaluation process. In fact, in some instances, this evaluative process is done in collaboration with other neighbors or relatives.

My mother, who is a senior citizen, was with me, but the water suddenly rose, it was hard to lift her to higher ground, and we don't even have our own rooftop. And so I was already pushing her, she couldn't walk, I was pushing her up, and she told me, "leave me here, leave me here to die", and told me that I should prioritize my kids. (FGD Participant, Local Volunteer Group A)

No, not immediately. We don't evacuate immediately. We would talk it out first with neighbors, "so, do you think the water will still rise? Do you think the rain will get stronger? Should we evacuate?" (FGD Participant, Community Group)

Nowadays, when it floods, especially when there is an announcement of a typhoon signal number 2, or when there are announcements of a second alarm, automatically, they open it. Then others will shout, "what now? Should we evacuate already?", yes, and then someone will shout, "hey, the gate is open! What now? Let's go already!" (FGD Participant, Community Group)

Additionally, the FGDs revealed that Tumanians value their properties and families greatly and that it is important for them not to be separated from their families and ensure the safety of their belongings and vulnerable relatives first before their own. This consideration influences how seriously they perceive the threat of flooding and can determine how soon they implement protective actions.

You will prioritize the kids, PWDs, and seniors; these three are the most important. (FGD Participant, Local Volunteer Group A)

Yes, so you should prioritize your things and kids. The kids should already be fed so you can bring them there [to the evacuation center]. Even if we have not eaten, the kids should have already eaten. Because sometimes, you just can't rely on the rations in the evacuation sites, sometimes they arrive late, sometimes they are not enough. (FGD Participant, Community Group)

Moreover, *psychological factors* such as the **psycho-emotional impacts of past flooding disasters** (i.e., whether they carry trauma, fear, panic, anxiety, distress, desperation, among others from past flooding events) and their **experience in flood** (i.e., a comparison of a present flooding situation vs past flooding situation (i.e., the level of floodwater, how quickly it rose, how strong it was, and how much damage it caused physically and psychologically) can also shape their evaluation of the flood threat.

During Typhoon Ulysses, I was like.. I was more complacent because I did not know the water level would still rise. We were on the roof already. I just told my kids to evacuate first. They stayed in the CIS evacuation center, whereas I and the dogs were left at home. I even carried our dogs to higher ground. (FGD Participant, Local Volunteer Group A)

But during Ulysses, we were not able to prepare. Everything was washed out. Yeah, like, "Ahh, maybe not. Maybe it won't reach us anymore. Because many things have been fixed (referring to infrastructural developments like dredging and the dyke)" Yeah, the flood water won't rise anymore. (FGD Participant, Local Volunteer Group A)

Search for Protective Action(s)

When a concrete perception of the risk is established and believed to cause serious harm to the individual, the search for available and feasible protective actions, either from their recollection of past experiences (i.e., actions they did in the past to cope with flooding) or from other sources such as official recommendations (i.e., formal and official instructions or recommendations from authorities to protect themselves from flooding) or from social networks (i.e., what their neighbors are doing or saying they should do) commences. The search for protective action is the last step of the cognitive evaluation process. At this stage, local knowledge, which is primarily based on their memories and recollections of past flooding experiences, is essential in that it guides the individual's reflection on protective actions that can and must be done to achieve protection from the perceived threat of flooding. The search is a revisiting of one's knowledge and understanding about floods (i.e., their recollection or memories from past experiences of floods) combined with a continued intake of information (i.e., observing social and environmental cues, and reading/hearing official warnings from authorities).

But now, when there is an incoming typhoon, or when we experience typhoons, the parents or adults, we would see them evacuating, they would head to the evacuation centers, maybe because, of course, brought by the trauma from events that happened before, events caused by flooding. (FGD Participant, Young Adults Group)

Just like in our family, I have five kids, three of them would pack up and fix our things, the other one will just monitor the flood or line up in the evacuation center when they are already giving out room numbers. That's what happens with us. But I have to stay at home

because of course, I'm responsible for fixing up/safeguarding our things. That's how we are, that's how most families are here. (FGD Participant, Community Group)

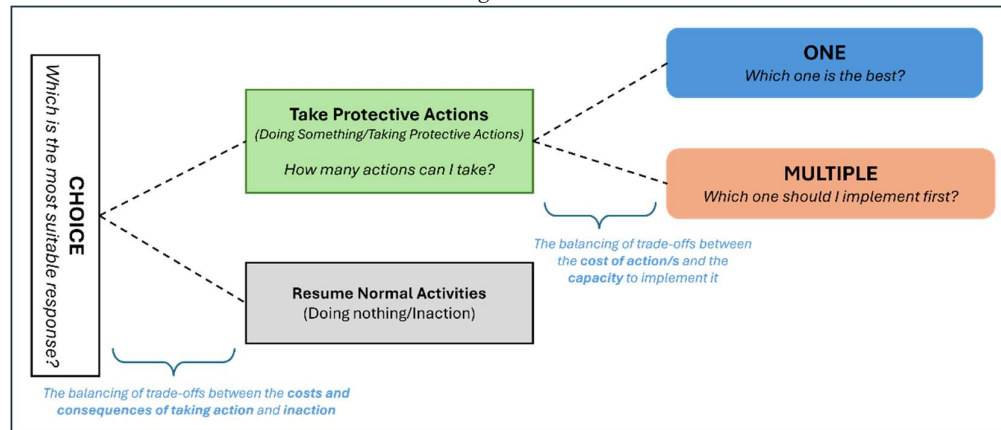
As noted earlier, the outcome of the cognitive evaluation process is a decision set that identifies actions that individuals can choose to take. Once a decision set is made, the individual proceeds to the next phase: The Protective Action Decision-making Phase, where they compare and evaluate the actions against their capacity to implement them and determine how soon and in what order to implement them.

5.4.3 Protective Action Decision-Making and Implementation

In this phase, the individual finds the best protective action(s) to take in the decision set based on their feasibility and suitability. In doing so, individuals probe the *costs*, *consequences*, *benefits*, and their *actual capacity* to implement the action(s). The first choice to make is whether to do something (i.e., take protective action(s)) or do nothing (i.e., inaction or the resumption of normal activities) as guided by their risk perception. For this decision, individuals compare the costs and consequences (i.e., time, effort, money, social relationships required, etc.) of taking protective action(s) (e.g., evacuating) against the costs and consequences of continuing normal activities (e.g., not evacuating). If the individual believes taking protective action is more feasible and suitable, then the next decision is on how many and which protective actions to implement, and how soon (i.e., urgency/timeliness) to operate these actions. If the threat is deemed to cause serious harm and an individual decides to implement protective actions, a comparison of the costs of taking these actions against their actual capacity to implement them will take place. According to Lindell & Perry (2004 & 2012), this succeeding process will present them with two options: a) taking one, single action among all alternatives available, or b) taking multiple actions and deciding which ones to implement first. **Figure 12** shows how the protective action decision-making process takes place.

Figure 12

PADM Phase III: Protective Action Decision-Making



Note. This figure was illustrated by the author and was adapted from (Lindell & Perry, 2012).

The data revealed that Tumanians have similar considerations that influence their assessment of protective actions – socio-economic and psychological factors, with respect to their knowledge about flooding that has been passed down by generations, along with their personal experiences on past flooding disasters. In finding the most feasible and suitable protective action to implement, individuals look into the *socio-economic capacities* and *resources* available at their disposal, such as **physiological and cognitive abilities** (i.e., whether they are physically and mentally capable of carrying out protective measures like carrying belongings or relatives to safety), **financial resources** (i.e., whether they have the money to carry out actions that require paid services like transportation or stockpiling of food), their **dwelling**s (i.e., whether the location of their dwelling will be submerged in the flood, or if they have higher floors to climb to, or whether it is safer and more comfortable at home or in camps), and their **familial and social networks** (i.e., whether they can tap on neighbor and friends, or assign relatives for support in evacuation, flood monitoring or packing activities; whether they will be separated from their families).

Yes, and we prioritize the children because once the flood water rises in this area, and I would go down from the second floor; the water level is already this high (gestures at the chest level), the kids won't be able to survive or swim through water that high. (FGD Participant, Community Group)

We should always think not only about ourselves but our families. We should think of that first. If our family can swim, can your family members swim through the flood if ever you did not evacuate on time, right? We need to think about the welfare of our families. (FGD Participant, Young Adults Group)

This last time, the most recent flood, we didn't leave (evacuate) anymore, we just stayed in our tall house. We did not evacuate because the second floor was not flooded. (FGD Participant, Community Group)

We also now have higher floors. We have a second floor, and we still have a rooftop. All our things are there, we just put a tarpaulin to use as our make-shift roof. That's where we stay, even the dogs, I tie them up there with us. (FGD Participant, Local Volunteer Group A)

Moreover, *psychological factors* such as the **psycho-emotional impacts of flooding** disasters, as well as their **experience in floods**, also influence this assessment. For example, the psycho-emotional impacts of past flooding disasters (i.e., whether the trauma, fear, panic, desperation, among others) can either motivate or demotivate them to take any action. More notably, their experience of flooding (i.e., whether they evacuated or not, protective measures done, albeit informal, whether they had a positive or negative experience in evacuation camps) became a foundation of their evaluation of which actions were feasible and most suitable to do in the past, and which were regrettable (i.e., inaction, delayed evacuation). The outcome of the protective action decision-making phase is their *behavioral response* (i.e., the action plan translated into action).

Then, after Ondoy, when it flooded, when the government would give instructions to evacuate, almost all of them would evacuate even if there was no flood yet. Even if there's no first alarm, they would really evacuate already. It's like they're really afraid now (of the flood). (Interviewee 2)

Table 5 summarizes how individual socio-economic and psychological factors, particularly their knowledge and experience in flooding, influence how Tumanians assess the threat and their coping capacity, and evaluate the feasibility and practicality of protective actions before deciding on which actions to take to respond to a flood threat.

Table 5
Factors that Influence the Evaluation of Threat, Coping Capacity, and Protective Action

Individual Factors		Threat Perception & Coping Capacity	Protective Action Feasibility
Socio-economic	Physiological & cognitive (i.e., knowledge, effort, and skill requirements)	Whether they are old enough to understand the threat and make a decision to respond to it, and whether they have the authority (i.e., being <i>head of the family</i> ⁹) to decide for the family.	Whether they are physically capable of carrying out physically demanding protective activities like carrying belongings to higher ground or evacuating relatives.

⁹ Being head of the family is still heavily gendered in the Philippines, with men presumed to be the breadwinners and decision-makers while women are expected to assume caregiving roles and responsibilities. This influences family dynamics and amplifies stereotypical gender roles for Filipino families (JICA, 2008).

		Individual Factors	Threat Perception & Coping Capacity	Protective Action Feasibility
Socio-economic		Financial (i.e., the cost of the threat/ of implementing the action)	Whether they should evacuate and can replace their property if it gets flooded or stolen or stay to safeguard their belongings.	Whether they are financially capable of carrying out protective actions that require paid services, like transportation, or the stockpiling of food.
		Dwellings	Whether they live in an area in the <i>barangay</i> that is low-lying (i.e., quicker and higher inundation) or relatively higher.	Whether or not their dwelling will be submerged in the flood, or if they have higher floors to climb to, whether it is safer and more comfortable at home or in camps.
		Social Networks (i.e., the required cooperation with others)	How their friends and neighbors perceive the threat and whether it must be addressed or dismissed.	Whether they can tap on neighbors and friends for support in implementing the protective action.
		Family Structure (i.e., familial bonds, roles, and responsibilities)	Whether they have vulnerable members such as PWDs, the elderly, children, or pregnant women, whose safety and comfort they must prioritize.	Whether their family members can implement the protective action with them, and if they can assign tasks for easier implementation, which protective action will provide their family members the safest and most comfortable conditions, whether they will be together or separated.
		Psycho-emotional Impacts	Whether they carry trauma, fear, panic, anxiety, distress, desperation, among others, from past flooding events.	Whether trauma, fear, panic, anxiety, distress, desperation, among others, cause them to be afraid to take any action or motivated to take action.
Psychological (Knowledge and Experience)		Flood and Evacuation Knowledge and Experience	A comparison of the present flooding situation vs the past flooding situation (i.e., the level of floodwater, how quickly it rose, how strong it was, and how much damage it caused physically and psychologically).	Whether they evacuated or not, consideration of the other protective measures, albeit informal, that were feasible in previous disaster situations, and regrets of inaction from the past. Whether they had a positive or negative experience in evacuation camps.

5.4.4 Improvised vs Recommended Actions

The study found that Tumanians choose between recommended (i.e., evacuation) and improvised (i.e., community-based) protective actions to protect themselves from flooding, such as monitoring of river level, packing/securing belongings to higher ground, seeking refuge at elevated locations such as roofs or voluntary evacuation to camps, prioritization of family members and the importance of togetherness, creation of make-shift floating or shelter devices. It was observed that many of these actions display a sense of community/unity/volunteerism, such as rescuing others, sharing of food and resources, sharing of information about flood or relief, and word-of-mouth warnings. These informal coping strategies, which have been formed through the collective flood experience of Tumanians and shared across generations, are used to reduce the impacts of flooding to this day.

For us, as long as there's an announcement of Alert Level 1, we will get ready because we already know that. The awareness of everyone. Clothes, medicines, food. We pack them in plastic bags or sacks. We don't bring more than we need, just those. Those important things like food and medicine should be there. Sometimes, even just clothes are enough since we will just return to our homes the next day. Just that we don't like bringing too much because it will eventually get wet in the flood when we brave the water. (FGD Participant, Local Volunteer Group A)

Additionally, the data suggests that the decision to enact official protective measures (i.e., evacuate) or unofficial coping mechanisms (i.e., seek refuge at home) have varied among the participants due, for the most part, to their knowledge of flooding and the experiences (whether positive or negative) that they carry from past flooding disasters and evacuation. They recall these memories and use their knowledge and experience to determine which actions and decisions worked for them the most.

This last time, the most recent flood, we didn't leave (evacuate) anymore, we just stayed in our tall house. We did not evacuate because the second floor was not flooded. (FGD Participant, Community Group)

We also now have higher floors. We have a second floor, and we still have a rooftop. All our things are there, we just put a tarpaulin to use as our make-shift roof. That's where we stay, even the dogs, I tie them up there with us. (FGD Participant, Local Volunteer Group A)

But us, we really don't like to evacuate. We just ask our neighbors to let us seek shelter at their place. I would explain to my children that we don't need to squeeze our family in the excessively crowded evacuation sites. Because first of all, there are so many people in evac sites, it's really difficult. And then you'll add on to the crowd and chaos? So I tell them, "let's just stay here, let's just climb a tall house nearby". And most of all, I want to see my children, in the evacuation site, this is difficult. (FGD Participant, Local Volunteer Group A)

5.4.5 Influence of Local Knowledge on Protective Behavioral Patterns of Tumanians

Once the protective action decision-making process is complete and an action plan is determined, individuals then decide how soon and in what order to implement the protective actions to protect themselves, their families, properties, and lives. Tumanians implement protective actions at three different phases of flooding: before, during, and after. Actions taken before the flood are **preparedness mechanisms**, actions taken during the flood are **response/coping mechanisms**, and actions taken after the flood are **adaptation mechanisms**. In all these phases, the resulting actions are drawn from experience and their established understanding and knowledge about flooding and evacuation.

For Tumanians, two distinct behavioral response patterns can be observed – i) the voluntary evacuation to camps following the Official Alert and Evacuation System implemented by the city, and ii) the delaying or forgoing of formal evacuation and seeking refuge at home/neighbor's house. Both behavioral responses begin with preparedness by **securing personal and essential** items (i.e., packing important possessions, such as legal documents, identification, albums, appliances, pets, and vehicles to higher, safer ground, and gathering essential items like food, water, and clothes). The action following is focused on response and coping by **seeking refuge or moving to higher, safer areas** with other living companions, such as family and pets/livestock, and deciding the place of refuge, which has varied for the participants of this study. It was found that the variation in the choice of places of refuge (i.e., evacuation camps or at home) was driven by the interaction between knowledge and experience of flooding¹⁰ and evacuation¹¹ with socio-economic factors, such as the *location and height of their dwellings, mobility, comfort and safety, execution of altruism/selflessness*, and their overall *perception of evacuation*.

Moreover, apart from the decision to seek refuge in camps or at home, another notable variation is the **execution of altruism/selflessness**¹². It was found that those who

¹⁰ For clarity, *knowledge and experience of flooding* is defined in this study as an individual's understanding and recollections of how quickly and how high flood waters can rise, move (i.e., current), how much it damaged their homes and property, and how much it limited mobility.

¹¹ For clarity, *experience in evacuation* refers more specifically to the encounters and interactions they had in evacuation camps during past flooding events. This encompasses the overall conditions of the camp, interaction with camp managers and other evacuees, and the support and assistance available at the camps, among others.

¹² *Altruism/selflessness* was a notable factor found in the study and refers to the desire of individuals to help others.

voluntarily evacuate have a different interpretation of being in service to others compared with those who choose to stay and seek refuge at home. The choice of the place of refuge is also influenced by the individual's preferred mechanism to execute altruism/selflessness, either by a) directly being of service or personally providing support to those in need, or b) forgoing the acquisition of services to give way to those in need.

The actions following these steps focus on adapting to the future risk of flooding. At this stage, individuals will clean up their homes and apply adaptive measures such as raising the floor level of homes, removing all essential properties in the lower floors of the house, and making informal arrangements with neighbors for evacuation.

Local Knowledge in Flood and Evacuation vis-à-vis Location and Height of Dwellings

As noted in the Cognitive Evaluation Phase, the vulnerability and exposure of one's dwellings are established through the recollection of one's experience about past flooding, along with their established understanding of flooding formed from experience (local knowledge) and official warnings. For Tumanians, they reflect on the level of the floodwater and the potential of this floodwater to rise further and enter their homes, and should it enter, do they have higher floors or neighbors with higher floors that they can evacuate to. Tumanians who live in low-lying areas with no higher floors, whose houses will be submerged, need to evacuate to ensure their safety. On the other hand, Tumanians who live in low-lying areas but have higher floors or have neighbors to support them, need to evacuate to camps to ensure their safety. As such, some Tumanians would choose to immediately evacuate to camps.

As for this last typhoon, of course, we already know. A day before it arrives, maybe even two or three days before, there's a typhoon, and someone announces what signal the typhoon will be. We have already learned from the past. We would already prepare our things, bring them to higher ground. So even when the water's still far from reaching our homes, we would already be at ... we would evacuate already. (FGD Participant, Local Volunteer Group A)

Yeah, before we don't pay attention to warnings, "don't mind that, we'll just stay here upstairs". Now, this cannot be! We evacuate there, in Concepcion Integrated School (CIS). All of us neighbors, sometimes we'd be assigned to the same rooms, but it depends on the room they give us. (FGD Participant, Community Group)

While others, particularly those who were able to afford to reconstruct their homes and add higher floors, tend to seek refuge in the comforts of their own homes because they believed their homes offered a more comfortable and safer place for them and their families.

Local Knowledge in Flood and Evacuation vis-à-vis Mobility

Another prominent factor that shapes the choice of place of refuge for Tumanians is mobility, where they consider the ability of their family members, pets, and their own to move and head to evacuation centers, which is usually done on foot. For families that have vulnerable members at home such as PWDs, pregnant women, the elderly, or beloved pets such as chickens, goats, and dogs, they believe that heading to the evacuation camps will be more difficult and costly than staying at home, as such, resort to seeking refuge at home or at neighbors' roofs where it is closer. Additionally, others fear that they might lose their pets or that they may not be allowed to bring their animals to stay with them in crowded evacuation centers. To some, being separated from their family or pets alone is unbearable, and as such, they would much rather seek refuge at home where they can be together.

We stayed at our roof. But I told my kids to head to the evacuation centers first, at CIS, and us, we stayed here, even the dogs, I brought them up (to the roof). The dogs... I don't want them to drown, so we stayed on the roof, all of us. My eldest kid, me, and my dogs. Just us. I said, "don't worry, leave it be. If we will drown, let's drown together", cause I pity my dogs. I would still prioritize them. ... I thought, if I brought the dogs to the school, they might not accept them. So I said, "let's just stay on the roof." (FGD Participant, Local Volunteer Group A)

Whereas others who had traumas carried from past flooding experiences of staying at home, but had a pleasant experience at the camps, were incentivized by this experience to follow evacuation protocols. For them, they willingly evacuate because they feel safer and more comfortable with their families in evacuation camps.

The pain of the memory, sometimes that's what inspires people to act, to be more responsible for their families and themselves [during times of flooding]. (FGD Participant, Young Adults Group)

This suggests that mobility considerations (i.e., whether they have vulnerable members in the family that require special care, such as kids, women, PWDs, and the elderly, or if they have animals with them) are influenced by their experience in evacuation camps, particularly on how easy or difficult it was to travel to evacuation camps with their families and animal companions.

Local Knowledge in Flood and Evacuation vis-à-vis Comfort and Safety

As mentioned in the previous sections, comfort is a common consideration for Tumanians in deciding where it would be best for them to stay and seek refuge during times of flooding. This comfort comes in the form of safety (i.e., protection from flood waters), security and privacy (i.e., protection from riots, physical harm from others, domestic

violence, sexual harassment, and theft), and services (i.e., food, water, electricity, medical attention, and amenities). Tumanians who had a pleasant experience at the camps believe that their needs, along with the needs of their family members, are best met in evacuation sites and, as such, are incentivized to willingly follow evacuation protocols. Whereas others who had uncomfortable experiences in camps (e.g., crowded situations or no available slots and had to walk to different schools to search for available rooms, or experienced theft) preferred to establish their forts at home through informal coping strategies.

Whatever happens, we would just stay there, on the roof, because it's already elevated. We don't evacuate anymore because I feel like.. I can move more freely, you know? ... The truth is, I don't meddle with acquiring services or relief. Yeah, the stories that my friends would tell me are sad. But for me, I don't meddle. Because, like what I said, my family will make the most of what we have, with what we've saved. So, for instance, even before it rains, but the weather is already unpleasant and there's already a typhoon signal, it's automatic, we would prepare canned goods. So my neighbors who can't prepare food ahead, we would share what we have with them because we know we have more than enough. ... Because I have noodles, eggs, rice, I have everything, even condiments. Everything is at home. That's why we don't leave the house anymore. It's safe. It's comfortable. So we're happy. (FGD Participant, Local Volunteer Group A).

Local Knowledge in Flood and Evacuation vis-à-vis Altruism

Moreover, apart from the decision to seek refuge in camps or at home, another notable variation is the **execution of altruism/selflessness** for Tumanians who choose to evacuate or seek refuge at home. It was found that those who voluntarily evacuate have a different interpretation of being in service to others compared with those who choose to stay and seek refuge at home. The choice of the place of refuge is also influenced by the individual's preferred mechanism to execute altruism/selflessness. Some evacuate early with their families so they can directly be of service or personally provide support to those in need.

Yeah, because what we've been told is to fix and settle your things first, evacuate your families, then if your services are needed, at least your families are already safe. Think of your family first. (FGD Participant, Local Volunteer Group B)

While others forgo the evacuation and the acquisition of services (e.g., relief, aid, etc.), stay at home, and give way to those they believe are more in need of these services.

But for our family, we are not used to evacuating. Because we know that others need the evacuation center more than we do, we choose to stay at home so that we can stay with our other families if we experience flooding. (FGD Participant, Young Adults Group)

So what we do is we would just seek shelter in the homes of our other relatives and not force ourselves and take slots in the schools. But I would go to the school and volunteer; but before

I do that, I make sure my family is safe and comfortable. It's difficult (to help) if you have worries in your mind. (FGD Participant, Local Volunteer Group A)

Local Knowledge in Flood and Evacuation vis-à-vis Perception on Evacuation

Perception in evacuation refers to what they know and think about evacuation centers based on encounters and interactions they had in evacuation camps during past flooding events. This encompasses the overall conditions of the camp, interaction with camp managers and other evacuees, and the support and assistance available at the camps, among others. For Tumanians who had a positive experience in evacuation camps, they have an overall positive perception of evacuation, and as such, have no reservations about opting to evacuate to better protect themselves and their families during times of flooding.

... Then there (in evacuation camps), there's electricity. Here at home, if we stayed here during the flood, there would be no electricity. In evacuation camps, there are electric fans, there's lighting, we can charge our devices, so it's so much better. (FGD Participant, Young Adults Group)

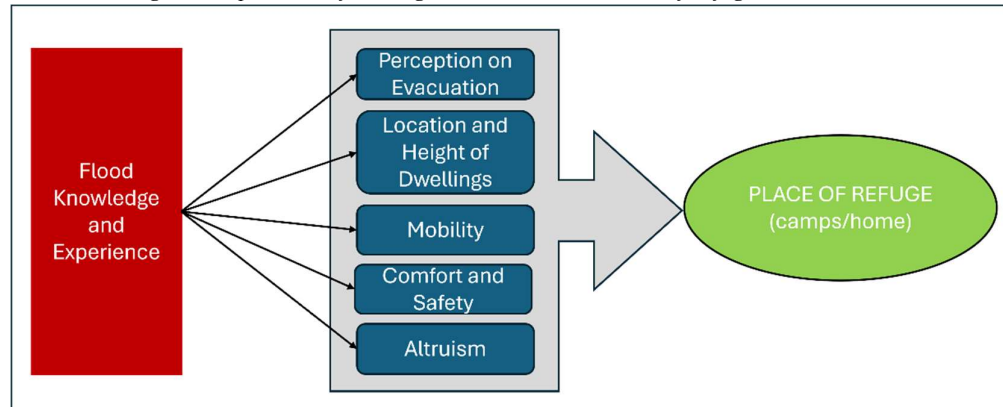
But there in the evacuation camps, you'll witness great things, too. There are people giving out mats, blankets, and clothes, it's all there. Then the first thing they give us is food that gives warmth to our stomachs, like porridge, soup, and champorado. Anything that can give warmth to the stomach, and they give them out with drinkable water. Then later on, there will be rice, hot dogs, food like that. They do not fail. And yeah, every once in a while, someone will knock and ask, "How many are you in this room?" like this. (FGD Participant, Community Group)

On the other hand, Tumanians who had unpleasant experiences in the evacuation camps have simply resorted to informal coping and adaptive measures and have sought refuge at home, as it proved more beneficial for them, based on their experience.

We'll just stay there, on the roof, because it's already elevated. We don't evacuate anymore because I feel like, you know, I can move more freely? I really don't like to stay in evacuation centers. It's more... yeah, our house is higher now. It's as if it doesn't matter if we get flooded, because we have prepared a large tarpaulin already which we would set up on the roof and across to the neighboring house, which is also high, then we would place a rock, and then we would be safe from the rain. We would stay on the roof like this. This is why we don't evacuate anymore. (FGD Participant, Local Volunteer Group A)

Figure 13

Flood Knowledge and Experience Influencing the Decision on the Place of Refuge



Note. Illustrated by the author.

By and large, interactions among the Tumanians' local knowledge and experience of flooding with the psycho-socio-economic factors, such as their perception of evacuation, location, and height of dwellings, mobility, comfort, and altruism/selflessness, can lead them to either voluntarily evacuate to camps or choose to stay and seek refuge at home. **Figure 13** illustrates how local knowledge and experience of flooding can influence these factors to yield a decision on the most appropriate place of refuge for Tumanians. Below is **Table 6** which summarizes the interaction and assessment of factors that cause Tumanians to either evacuate or forgo evacuation.

Table 6

Summary of Interactions of Factors with LK and CE to Determine Place of Refuge

Psychological, Social, and Economic Factors		Voluntary Evacuation	Seek Refuge at Home
Perception of Evacuation	of	Positive	Negative
Location and Height of Dwelling		Low-lying, no second/higher floors to climb to.	Low-lying but with second/higher floors to climb to.
Mobility		Can afford, move, and head to the evacuation camps.	Costly and physically difficult to head to the evacuation camps.
Comfort		Resources and support services are more accessible in evacuation camps.	Resources are more accessible at home, and support services can be acquired from neighbors.
Altruism		Must evacuate the family early to directly provide services/personally provide support to those in need.	The individual intends to help by giving way to others.

For Tumanians who have chosen to delay or forgo evacuation and implement informal, more personal protective schemes (i.e., informal coping strategies) have chosen to do so because their knowledge and experience lead them to believe that these actions are more feasible, convenient, and practical for their situation. For these individuals, their past coping mechanisms (e.g., seeking refuge at home or at neighbors', sharing available resources with neighbors, word-of-mouth communication and warnings, using make-shift floating or roofing devices, etc.) and informal adaptive measures (e.g., elevating the house or building higher floors, keeping the first floors empty, etc.) have worked to protect their families, properties, and lives from flooding and implementing these actions provide them with comfort and assurance that outweigh the trauma, the costs of evacuating, and the overall threat of incurring personal damages from the actual flooding event.

We also now have higher floors. We have a second floor, and we still have a rooftop. All our things are there, we just put a tarpaulin to use as our make-shift roof. That's where we stay, even the dogs, I tie them up there with us. (FGD Participant, Local Volunteer Group A)

But us, we really don't evacuate. We just seek shelter at our neighbor's place that is high. I would explain to my children that we don't need to squeeze our family in the excessively crowded evacuation sites. Because first of all, there are so many people in evacuation sites, it's really difficult. And then you'll add on to the crowd and chaos? So I tell them, "let's just stay here, let's just climb a tall house nearby". And most of all, I want to see my children, in the evacuation site this is difficult. (FGD Participant, Local Volunteer Group A)

Additionally, data emphasized that Tumanians' experience in evacuation shapes their perception of evacuation (i.e., either positive or negative), which either motivates or discourages them from implementing the protective action (i.e., to evacuate). Individuals who have a negative experience believe that seeking shelter in the camps, even with the support and assistance available on site, would cause them and their families more harm than good, and as such, would much rather seek refuge at home where they feel safer, more secure, and more comfortable. This negative experience stems from an assessment that the camps were unsafe (i.e., experiences of sexual harassment and domestic violence, unsanitary toilets), insecure (i.e., experiences of violence and theft, unrestricted access to rooms), and uncomfortable (unsanitary restrooms, crowded conditions, delayed deliveries of food, water, and medicine). These individuals forgo evacuation and believe that ensuring the protection and well-being of their family is easier and more feasible at home.

On the other hand, individuals who have a positive experience are convinced that despite the discomfort of being in a crowded evacuation camp, the support and assistance made available to them in the camps are enough to ensure the safety, security, and well-being of their families, and thus, motivates them to voluntarily evacuate during times of

flooding. This positive experience stems from instances where they were able to receive free and complete meals each day, including snacks, free and accessible medical care, free water and electricity, comfortable beds, and dividers for privacy, presence of security personnel for crowd control, available cages for animals, and specialized rooms for vulnerable populations such as the elderly, PWD, and lactating women, among others. These individuals voluntarily adhere to evacuation protocols because they believe that the benefits of staying in the camp outweigh the discomfort of adjusting to new environments brought by evacuating to the camps and that they, along with their families, are better protected and more comfortable in evacuation camps rather than at their own homes.

Reasons Behind Delaying/Forgoing Evacuation

The study found that Tumanians choose to delay or forgo evacuation to camps, which has been noted repeatedly in the FGDs, because they feel uncomfortable staying in the camps due to the lack of safety, security, and privacy in the camps. They fear that the camps are always too crowded and filled with families, which puts their families at risk of sickness, violence, or harassment, and their properties at risk of theft. For this reason, many Tumanians have adapted to floods by adding higher floors to their homes or setting up informal arrangements with neighbors to seek shelter at their place and securing essential items they might need during the flood at home.

Another reason that they refuse to evacuate is that they believe other neighbors who are living in lower and more vulnerable areas might need it more than they do, and that these residents have other options, such as evacuating with their families who reside in higher areas, to protect themselves from flooding. Finally, another notable reason for them to stay at home instead of evacuating is due to complacency and thinking that the flood will not be as devastating as last time, because i) they and the local government have implemented individual (e.g., adding higher floors to house) and structural improvements (e.g., dredging the river or declogging sewers), or ii) the past catastrophic flooding disaster happened many years ago and that they have forgotten the gravity of the flooding situation in Tumana.

... well, before Ondoy happened, there were no catastrophic floods to hit us here. So, Ulysses, that's what happened again. It was like Ondoy again. The barangay officials struggled to make them evacuate. It's like they have forgotten Ondoy. They were hesitant to evacuate. Then, more recently, Carina, the same thing happened. Because it took some time again, how many years [before flooding happened again in Tumana] (Interviewee 2)

For Ulysses, it was also unforgettable for me, since we were able to renovate and elevate our house, we had a second floor already. So it was like we were confident that the flood wouldn't reach the higher floor. So we said, "We won't evacuate anymore, we're fine staying

here on the second floor". But during that time, there were only a few steps left in the stairs and the flood water would reach us already. (FGD Participant, Young Adults Group)

Ultimately, local knowledge and experience of flooding have shaped the ways in which Tumanians recall, decide, and act on protective behavioral patterns against flooding, which leads them to the protection of their important belongings, then seek shelter at safer, higher ground (either at home or at evacuation camps), and eventually to enact adaptive measures to protect themselves from future flooding events. Moreover, they believe that their recollections of past flood experiences are essential in guiding their actions to protect their family, property, and themselves in the face of a flooding disaster.

The pain of the memory, sometimes that's what inspires people to act, to be more responsible for their families and themselves [during times of flooding]. (FGD Participant, Young Adults Group)

This experience ... while we carry and remember these experiences, we will pass it down and share these stories to those who have not experienced it for as long as we live. (FGD Participant, Community Group)

The difference that we have here in Marikina in terms of the implementation of our flood protocol is experience. We [in the government] no longer struggle to explain to them that this is what they will experience, this is possibly what's going to happen, because it already happened. They experienced it already. Right? So when we tell them, "oh, we're almost at the second alarm, there's already flood water there in front of your homes, evacuate now", we no longer need to force them because they already know. (Interviewee A)

In the same vein, the data revealed that even when an individual has decided on a clear action plan, the actual translation of this action plan into a behavioral response is dependent not just on their desire and urgency to take those actions, but more so on the physical, social, and environmental conditions that can either facilitate or hinder these actions. In some cases, Tumanians have expressed that they intended or wanted to evacuate, but there was insufficient space in the camps, or that they did not have a safe route to use to the evacuation camps due to impassable roads or physical disabilities that hindered mobility. For these situations, physical, social, and environmental conditions became impediments to the implementation of protective action.

Yeah, and what's even more horrible, which I experienced during Ondoy, is that the moment I went out (to the street), no, we're just stuck. No one can leave or escape, whatever happened. (FGD Participant, Community Group)

*... We talked in the family, "let's tie ourselves together", including my mother. She *points to her daughter*, was pregnant. "Let's tie ourselves together, no one should be left out, we'll all die together". It's because the water kept rising quickly, we did not have any other choice, we couldn't leave anymore. We were on the roof. (FGD Participant, Community Group)*

By and large, Tumanians' protective behavioral patterns and actions to prepare for, respond to, and adapt to flooding are deeply linked to their built local knowledge and collective experiences. For this reason, their daily lives and their protective measures, whether formal or improvised, are naturally shaped by their LK and CE in flooding, and these assets are deemed essential by the locals themselves in guiding their protective actions. Moreover, their informal coping strategies are characterized by strong community ties and social networks. The closeness and trust of the community play a big role in their coping mechanisms and strategies. Finally, Tumanians do not forgo the implementation of recommended protective actions (i.e., early, voluntary, or forced evacuation) due to poor cognitive abilities, but due to several socio-economic reasons that merit further exploration in further studies.

5.5 Local Knowledge and Experience in Policy and Governance: Policy Analysis using WoS

The study's central question asked: *"How can local knowledge and collective experience inform protective behavior and formal policies against flooding?"* and the previous section summarized the findings that address how LK and CE influence individual behavior. The following section illustrates how LK and CE can be useful inputs to inform flood resilience policies to enhance flood resilience at a community level by showcasing the case of Marikina City, the larger political unit within which *barangay* Tumana is part of.

This section discusses the operationalization of the Whole-of-Society approach in integrating local knowledge and experience into Marikina City's Flood Protocol. This process was revealed through three (3) thematic categorizations that emerged from the data: i) **Policy Formulation and Development**, ii) **Policy Implementation & Information Dissemination**, and iii) **Policy Improvement**. Within these themes were actual strategies done by the government that have contributed to the development of a legitimate, sustainable, and community-based flood protocol that is used by the city and benchmarked by others to this day. The table following this section shows the summary of thematic categorizations that provide a clear illustration of the operationalization of WoS to integrate LK and CE in flood policy for Marikina City, for easier reference.

5.5.1 Policy Formulation and Development: Institutionalizing Local Experience

In the onslaught of Typhoon Ondoy, no specific and official flood protocol was institutionalized and cascaded to the public yet. Both the local government and the residents

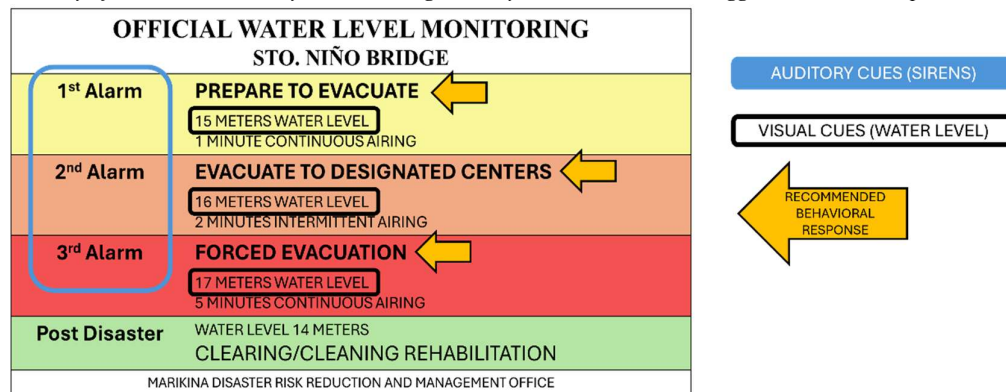
were caught by surprise by the unprecedented rainfall brought by torrential rains of Ondoy, which consequently caused the Marikina to overflow and cause widespread flooding in and out of the city. The local government, despite being overwhelmed, had already utilized the Incident Command System (ICS), an integrated and organized structure or hierarchy of command that is activated to address the demands of an emergency to streamline the mobilization of resources. With this, they were able to assign roles (e.g., communication, logistics, transport, rescue, medical, etc.) and establish ad hoc committees by tapping into the branches of their local government and mobilizing resources more efficiently than their other neighboring local governments.

The establishment and formalization of the Flood Protocol marked a pivotal shift from unofficial and improvised responses to a structured and systematic process of responding to flooding concerns. The Flood Protocol is the city's one-page brief, which shows a multi-layered mechanism of what to do before, during, and after a flood. It shows the alert levels with respect to the river's water level, details on the use of signals through the sirens, and the consequent recommended preparation and evacuation procedures. The data revealed that the basis of the protocol was their shared and accumulated knowledge of flooding and informal coping strategies of the city's vulnerable communities, particularly of low-lying *barangays* like Tumana. Brought by their experience with recurring floods, the city realized that typhoons and disasters have become even more frequently occurring, volatile, and uncertain, and as such, undertook the task of documenting this knowledge and translating it into a formal system of monitoring, warning, and evacuation. They sought to institutionalize an official flood protocol system that can be utilized and applied by all communities in the city for the years to come, regardless of changes in political leadership.

The official Flood Protocol of the City of Marikina was designed with respect to the city's collective experience with flooding. It monitors the water level of the Marikina River (through a real-time livestream), whose overflowing serves as the primary cause of flooding in the city and assigns an alert level of warning (through sirens) and the recommended protective action (i.e., evacuation procedures), as a response to the warning to protect themselves from the threat of flood. In simple terms, through the institutionalized flood protocol, the city established an alarm and evacuation system that provides *auditory and visual cues and warnings* of flooding to trigger a consequent *behavioral response* (i.e., protective action) from the vulnerable people of Marikina, such as residents of *barangay* Tumana (see **Figure 14**).

Figure 14

The City of Marikina's Alarm System: Utilizing Auditory and Visual Cues to Trigger Behavioral Response



Note. This figure was illustrated by the author and is intended to highlight the City's simple yet effective use of visual and auditory cues to trigger a response. This figure was based from the City of Marikina's Alarm System from the Flood Protocol.

The process of institutionalizing this protocol involved the documentation of existing, albeit informal, practices, the creation of legal and administrative foundations for the protocol and the bodies that implement it, and the mainstreaming of the protocol through information, education, and communication campaigns and awareness programs (usually workshops and training) in local communities and even in schools. In creating an essential policy that intends to save lives and must be upheld through time and political developments, institutionalization becomes paramount.

During Ondoy, we were already using it, the Incident Command System. We just continuously improve it. That's where the experiential part comes in. We get to infuse how we manage after a disaster, during a disaster, and before a disaster. So we improve those protocols. ... He wanted to institutionalize everything. Everything should be written because most of the managers, there are those that "graduate" (i.e., separate from the organization for better opportunities or retirement), some retire or leave for greener pastures, and he wanted the protocols to be passed down properly. So now, we have institutionalized it, and we already have ordinances regarding that. (Interviewee 1)

5.5.2 Policy Implementation and Risk Communication

Even with the strength and legitimacy of these institutional mechanisms, the government's capacity to implement the protocol effectively and address all the needs of the community was, and remains, insufficient. This realization motivated the city to make use of the Whole-of-Society approach, where the engagement and active participation of actors outside of the politico-administrative boundaries of the city were given equal importance as state actors. This implied the involvement of civil society groups, churches, homeowners' associations, volunteer organizations, NGOs, and private citizens.

The protocol's development, along with its implementation, does not conform to the traditional top-down approach of public administration, which assumes citizens are mere implementers of recommended action. Rather, it employs a grassroots and collaborative process through participatory governance that draws upon the residents' shared understanding and experience of flooding and consequent protective actions they know and use, while also empowering them to take part in the implementation of the flood protocol. This created a shared sense of ownership of the flood protocol and made it easier to implement with the support and participation of all stakeholders.

The secret to that is the participation of the community. All the programs, all the best programs of the government, will be useless if the community does not participate well. This is what I would always say when I am asked what Marikina's secret to resilience is. Marikina's secret is the partnership between the community and the government. I believe that's our best practice, not only with disaster management but even with cleanliness in all of the structures of Marikina. Because the people are participating in the programs. (Interviewee 1)

The institutionalization of the Flood Protocol ensured that the system was well-documented and was in line with existing local and national legal frameworks and plans. For this reason, the dissemination of the Flood Protocol to the citizens through information, education, and communication (IEC) materials and awareness campaigns became easier. Importantly, this granted the Protocol legitimacy to ensure its implementation and public recognition, which encourages compliance. Moreover, it granted the local government the necessary resources, both in terms of budget and especially in human resources, from within the local government and those from national agencies such as the Philippine National Police, Bureau of Fire Protection, Armed Forces of the Philippines, and the Bureau of Jail Management and Penology. The institutionalization of the protocol fostered an inter-agency disaster management and coordination where personnel with the skills and other resources can be deployed to support the mobilization of efforts during flooding disasters.

So in this protocol, we involve everyone. National agencies, who are those agencies? The Philippine National Police, Bureau of Fire Protection, Bureau of Jail Management and Penology, uhh... the joint task force – the joint task force involves the entire Armed Forces of the Philippines plus the NGOs, Red Cross, our volunteer groups here in Marikina. So for the local side, all local agencies under the local chief executive are involved, then down to the community, the barangays, to the homeowners associations. All of them are involved. (Interviewee 1)

In both the FGDs and KIIs, participants consistently referred to Typhoon Ondoy as an unprecedented disaster that served as a critical period of learning for both the city and the residents. The catastrophic impacts of Typhoon Ondoy brought to light the limitations

and sensitivity of formal systems to disasters. It further emphasized the value of local knowledge (i.e., knowing which areas are flooded first, how high flood waters can get, how to evaluate the water level of the river vis-à-vis surface flooding, which routes are passable and impassable, etc.). This knowledge was the primary data the city used to design the Flood Protocol and is still continually utilized by the city to improve the system's practical relevance (i.e., combining theory with practice). This means that grassroots knowledge and community involvement did not end at the development of the protocol; rather, residents and community members are actively involved in the drills, alert and warning distribution, and even in actual response and relief efforts. Ultimately, the holistic and genuine involvement of stakeholders has proven essential in the success and sustainability of the city's Flood Protocol and evacuation system.

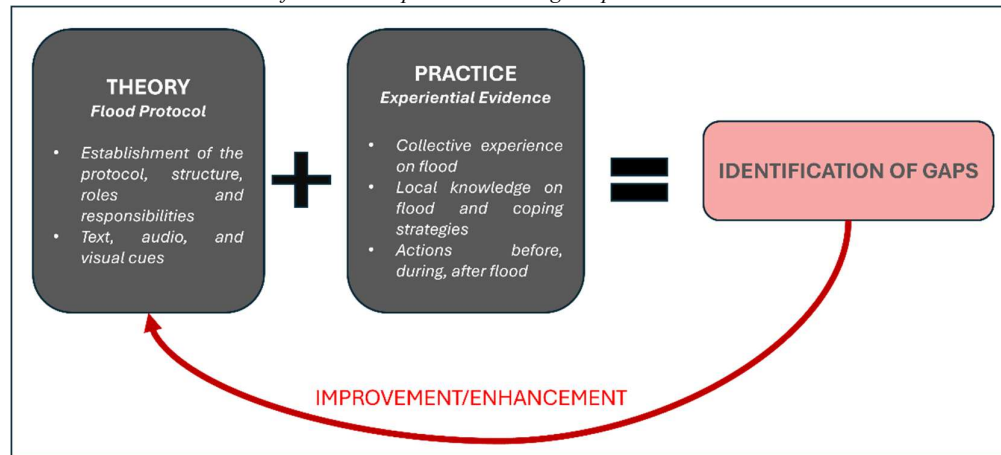
5.5.3 Policy Enhancement: Improvement through Experiential Consent

In the aftermath of intense flooding disasters, most notably Typhoon Ondoy in 2009, the first and worst typhoon to hit Metro Manila in the first decade of the century, the City of Marikina emerged as a model city for disaster resilience, especially in its successful development of a comprehensive and community-based Flood Protocol. The City's Flood Protocol was not merely an administrative response based on theories of disaster or flood management borne out of technical assessments and empirical studies. The Protocol was a comprehensive policy and framework that was a product of both theory (i.e., the creation of a formal protocol based on evidence) and practice (i.e., lived experience of residents) and was drawn from the collective memory of adaptive, albeit informal practices, of the residents, which have been passed down to generations. **Figure 15** shows the author's interpretation of how this iterative process of policy improvement takes place for the city.

... so with that, when we institutionalized the protocol, we created different protocols for different scenarios. Marikina is known for flooding because of the factor you mentioned earlier, our geographical location. When we formalized the protocol, what's good about it is that we get to improve it through experiential consent. (Interviewee 1)

Figure 15

Marikina's Iterative Process of Protocol Improvement through Experiential Consent



The KIIs and FGDs revealed that the success of their flood protocol and the obedience of the residents to comply with official plans of action are due, in great part, to their shared collective experience of flooding as well as the active participation of the local community in its development and implementation. This allows the government to create, implement, and improve its policies through experiential consent.

5.5.4 Proactive Management and Community Engagement

Another key dimension that emerged from the data, particularly on how the WoS approach was an effective machinery in the formulation, implementation, and enhancement of the city's flood protocol, was the role of proactive management. Proactive management simply implies strong political will and leadership from the side of the government, which can strengthen public trust and confidence (i.e., the public's perception of the government's integrity and effectiveness).

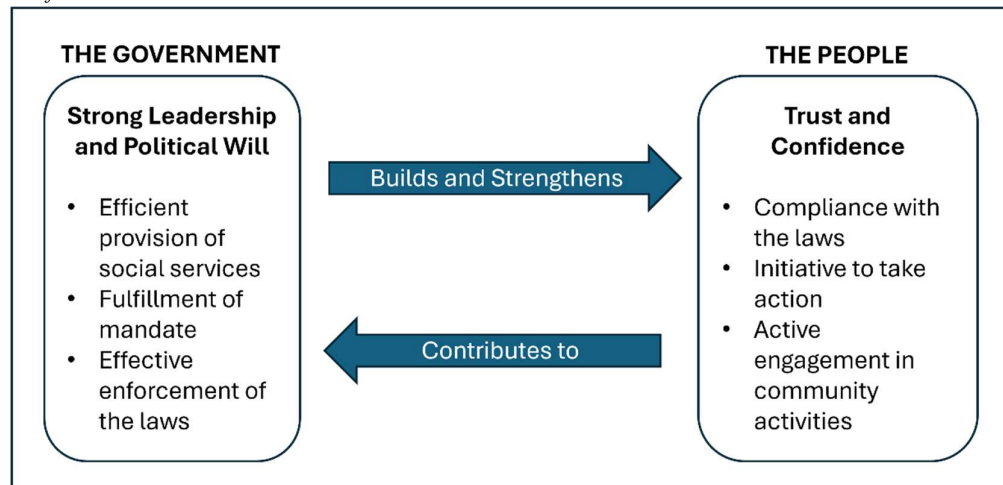
The local chief executive referred to proactive management as the “*common-sense government*”, whose basic principle is that the government must provide for the services that the citizens need because it is its mandate and duty, and that the fulfillment of the same fosters trust and confidence in the government which can inspire compliance, community engagement, and even the self-enforcement of the law. For example, when the government decides on a certain policy or promises to provide a certain service, it will be expected to fulfill these duties decisively, consistently, and transparently. Doing so cultivates public trust and confidence in leadership and the government, which, like a cycle, contributes to the effective enforcement of plans, policies, and programs. **Figure 16** is the author's interpretation of how this interaction takes place, based on data from the KIIs and FGDs.

The concept that there is a government working for them. We need to establish trust. That the people will trust the government to work for them. ... Here, people openly and freely complain. We elevated their taste in governance, in the government. So, they themselves will initiate, because we (in government) cannot monitor everything. We cannot see all corners of Marikina, but we can count on their help to tell us. So whatever they tell us that we must look into or work on, we do it. This is what the mayor calls “common-sense” government. ... it means the people will ask you (as government) for help because they have needs to be met and believe you can provide it. You won't ask for help from someone you know cannot help you. Right? So that's why someone asks you for help because they expect you can help them. And when you can't fulfil those, they will lose their trust in you. ... you won't run to someone you know cannot help you, right? ... So the concept (common-sense government) is like this. We (as government) will do our part, they (the people) will trust and rely on us. If and when we tell them “no”, they will really follow because they know we will enforce it, that's our political will. Other LGUs assume that political will is harnessed from fear, that's not true. Political will is the enforcement of the laws, of what is right. So we just enforce it. (Interviewee 1)

Leadership decisions during times of flooding like declaring class suspensions, mobilizing resources for evacuation and relief, and even clean-ups and the clearing/collection of garbage and debris were seen as effective and responsive governance, which, in turn, reinforced the credibility of policies and regulations of the city (such as that of the Flood Protocol), and promoted the community's adherence to and self-enforcement of the same policies.

Figure 16

'Common-Sense Government': Interaction of Strong Leadership and Political Will with Public Trust and Confidence



Note. This figure was illustrated by the author based on their personal interpretation of the “Common-Sense Government” practiced and promoted by the local chief executive and residents of Marikina City.

Finally, the study found that proactive management also meant that the government was taking proactive actions in disaster risk management. For the city's flood protocol, this means that it is crucial to anticipate and prepare for the risks rather than simply react to them.

The flood protocol involves the regular updating of the hazard maps, continuous implementation of capacity-building workshops, and a consistent post-mortem reflection to reveal and improve the gaps in the framework. In the search for gaps in implementation, the government, together with all stakeholders, draws on experience from past flooding events to come up with policy improvements. This way, improvements are not theoretical but rather practical and can easily be integrated into their policies. These initiatives point to a leadership and governance style that is grounded in community involvement, trust-building, and the practicality of the policy based on the experiences of the local community.

5.5.5 Influence of Local Knowledge and Experience on Formal Protocols

The evidence suggests that local insights can, indeed, shape flood resilience policies and, in turn, yield responsive, appropriate, and adaptive policies that strengthen community-based flood resilience for these communities. Additionally, data revealed that basing formal policy on local knowledge and experience can strengthen legitimacy, promote compliance, and improve the effectiveness of these protocols for flood management. This case study provides evidence on how grounding formal flood resilience policy with actual local insights creates an empowering environment for the co-creation of adaptive strategies to flood resilience. It further demonstrates how contextualizing formal policy using local narratives and experiential consent can strengthen the legitimacy and effectiveness of flood resilience policies while promoting community engagement in policy development, implementation, validation, and enhancement.

5.6 Summary of Key Findings

In analyzing the data guided by the PADM model and WoS approach, five themes emerged, which show how local knowledge and collective experience in flooding shape the protective behavior of Tumanians, how deeply embedded these are in their daily, normal lives, and how essential these are in the formation of official and improvised coping mechanisms against flooding (see **Table 7**). Local knowledge (LK) and collective experience (CE) influences the protective action decision-making process of Tumanians, from the intake and processing of risk information, the evaluation of the threat and their consequent coping capacity, the search for protective actions, and finally, their decision and implementation of protective actions to take (i.e., their behavioral response). In this regard, it goes without saying that Tumanians' decision to enact recommended (i.e., evacuation) or improvised protective actions before (i.e., preparedness), during (i.e., response/coping), and

after (i.e., adaptation) are built upon their LK and CE in flooding. Finally, it was observed that LK and CE in flooding are deeply embedded in their local history and culture, and that Tumanians themselves believe that these assets are essential in guiding their protective actions against flooding.

On the other hand, this case study also provides evidence on how local knowledge and experience shaped and served as foundational inputs in the development of local flood resilience policies and protocols through the operationalization of participatory governance approaches such as the WoS approach. In analyzing how local knowledge and experience shape and strengthen flood resilience policies, four (4) themes emerged, which also reflect how these assets have been integrated into the policymaking process of Marikina as guided by participatory approaches to governance (see **Table 8**). Local knowledge and experience were formally institutionalized in Marikina City and are now being implemented across the city, particularly in its most flood-prone localities, such as *barangay* Tumana, to mitigate the impacts of flooding. The City's Flood Protocol is a product of the integration of theoretical perspectives with the lived experiences and accumulated local knowledge of the communities in flooding. This integration was facilitated through the genuine participation, engagement, and grassroots validation with the locals through participatory governance approaches such as WoS.

It is evident that genuine and serious efforts to integrate Tumanians' local knowledge in policy are being made, particularly due to the vulnerability of the locality to persistent, recurring, and intensifying flooding. This case provided a best-practice example of recognizing and integrating these valuable local assets throughout the public policy process. The following chapter discusses the implications of the influence of local knowledge and experience in individual protective behavior and institutional strategies to flood resilience. It further outlines pathways to the co-creation of a more inclusive, locally informed flood risk management guided by participatory governance, such as the WoS approach, to establish long-term, responsive, and adaptive community-based flood resilience.

Table 7

Themes Generated based on PADM and WoS with Descriptions – LK and CE in Flooding vis-à-vis Protective Behavior

Initial Codes	Consolidated Code based on PADM and WoS	Themes	Description
Normalcy in Tumana	Life and normalcy in Tumana	Local Knowledge and Collective Experience of Tumanians	This theme captures the deeply embedded understanding, familiarity, and lived collective experiences of Tumanians with persistent, recurring floods. It reflects how long-term residency, tight-knit familial and social ties, socio-economic barriers, and a sense of normalcy despite flooding have shaped their daily lives. This theme shows that flooding is seen as a routine occurrence and part of the trade-off for living in an area that offers a simple life.
Familial roots and social relations			
Low cost of living			
Proximity to basic needs			
Lack of options due to poverty			
Tumana as a well-established residential area	Susceptibility of Tumana to flooding	Information Seeking and Sources	This theme delves into how Tumanians seek, gather, assess, and comprehend information related to flooding. It discusses their multiple sources of information from environmental and social cues, unofficial word-of-mouth exchanges, to formal warnings from authorities. It emphasizes the community’s reliance on formal and informal sources to guide their protective action decision-making.
Being used to the flood			
Information intake			
Information evaluation/comprehension			
Environmental cues			
Social cues	Pre-decisional processes	Risk Perception and Coping Capacity	This theme explores how Tumanians perceive the threat of flood (i.e., risk perception) and evaluate their own ability to cope with respect to their risk perception. It discusses how their perceptions are shaped by factors including physical and cognitive processing, economic capacities, housing conditions, social and familial networks, and family roles and social norms.
Official warnings			
Socio-economic factors			
Psychological/Experiential factors			
Socio-economic factors			
Psychological/Experiential factors	Coping Appraisal	Protective Action Decision Making and Implementation	This theme captures the cognitive evaluation process behind how Tumanians decide on and carry out protective actions before, during, and after flooding. It includes both formal (e.g., evacuation) and informal mechanisms (e.g., coping strategies) and explains how past experiences, dwelling characteristics, and considerations on mobility, comfort, safety, and even altruism can shape the protective behavior of Tumanians.
Socio-economic factors			
Psychological/Experiential factors			
Socio-economic factors			
Psychological/Experiential factors			
Action patterns (evac/non-evac)	Protective Action Decision Making	Action variation drivers	
Formal evacuation			
Informal coping strategies			
Perception of Evacuation			
Dwellings			
Mobility			
Comfort and Safety			
Altruism			

Table 8

Themes Generated based on PADM and WoS with Description - Influence of LK and CE on Flood Policy

Initial Codes	Consolidated Code based on PADM and WoS	Themes	Description
Documentation	Institutionalization	Policy Development	This theme captures insights on how the institutionalization of the Flood Protocol was initiated by the City, beginning with the documentation of local experiences, referring to international and local DRM frameworks, and validating the same through participatory governance mechanisms such as meaningful public consultations, validations, and engagement.
Establishment of Legal Bases			
Based on International and Local DRM Frameworks			
Validation with the Public			
Community Engagement/Consultations with the Public and Their Experiences			
Community Engagement/Participation in Policy Implementation	Official flood protocols for local government	Policy Implementation and Information Dissemination	This theme delves into the actual flood response protocols, activities, and services by the local government in the form of their internal/inter-agency/inter-departmental operations before, during, and after flooding events. It further highlights how the local government is able to involve all of society and all of government in the conduct of its operations through the flood protocol.
Early Warning Systems, Flood Monitoring, Announcements, Risk Communication			
Traffic, Safety, and Security Operations			
Capacity Building and Awareness Raising			
Rescue, Relief, and Evacuation Operations			
Grievances and Concerns via Rescue 161			
Finding Gaps to Improve	Merging Theory with Practice and using Experiential Consent to Improve Policy	Policy Improvement	This theme explores the operationalization of participatory governance to combine local insights and lived experiences with theoretical approaches to flood resilience to constantly improve the flood protocol.
Experiential Consent			
Community Engagement/Participation in Policy Improvement			
Leadership and Political Will	Interaction of leadership and political will with public trust and confidence	Proactive Management	This theme is focused on the interaction of strong leadership and political will from the side of the government and public trust and confidence on the side of the people, how these two factors can support or undermine each other, and the implementation of flood resilience policies.
Law Enforcement			
Service Provision			
Public Trust and Confidence			
Voluntary Implementation of Policies			

Chapter Five: Analysis and Findings

Chapter Summary

This chapter began with a recap of the study's purpose, methods, and central research question. Guided by the PADM and the WoS frameworks, the chapter presented and analyzed the findings to reveal how local knowledge and collective experience informed the residents' protective behavior, and consequently, shaped the local flood protocols, plans, and policies against flooding. It further explored the flow and sources of risk information, the ways in which this information is heeded and comprehended by the residents, the formation of their perceptions of risk and coping capacity, the search for protective actions, the implementation of these actions (i.e., both formal and improvised protective actions), and variation drivers in their protective behavioral patterns against flooding. This chapter concludes with a summary of the key insights that emerged from the data to demonstrate how local knowledge and lived experiences shaped individual protective behavior and formal strategies to flood resilience.

Chapter Six: Discussion and Policy Implications

6.1 Chapter Overview

This chapter interprets the study findings and centers on how local knowledge and collective experience can shape protective behavior and policy against the threat of recurring and persistent flooding. It further explores the practical and policy implications for formal policy and suggests that when these local insights are recognized and meaningfully embedded in formal flood policies through grassroots governance frameworks, they have the potential to strengthen community-based flood resilience, particularly for flood-prone and tight-knit communities such as Barangay Tumana. The discussion begins with a recollection of how local knowledge (LK) and collective experience (CE) in flood shape individual protective behavior and policy, and situates the study findings within existing theories and literature. It then outlines practical implications of the findings to provide essential insights into how participatory flood resilience policies can be made more inclusive, context-specific, and appropriate for the communities they are meant to protect.

6.2 The Role of Local Knowledge and Experience in Community-Based Flood Resilience

The case of Tumana is evidence that local knowledge and experience, although often undocumented and difficult to quantify, are essential factors in understanding how a community perceives disaster risk and establishes strategies to cope with and adapt to flooding. The formation of these informal mechanisms to ensure survival in a flood-prone locality such as Tumana entails the use of location- and context-specific flood histories, community-built and shared knowledge, and norms that have accumulated and been passed down to generations. Their coping strategies, albeit informal, formed through their knowledge of floods and collective experience of the same, have enabled Tumanians to cope with and recover from years of flooding disasters. These non-quantifiable elements are valuable resources at their disposal, particularly for vulnerable communities, during times of flooding, and serve as lifelines that guide their protective behavior during these situations.

Through Lindell & Perry's (2004 & 2012) Protective Action Decision-Making Model (PADM), the study finds that Tumanians implement protective behaviors slightly differently as influenced by their knowledge and experience of flooding, with their actual response patterns falling between formal evacuation (as encouraged by authorities through the Flood Protocol) or informal coping strategies (shaped by local knowledge and their

experience in flooding). From the pre-decisional phase of taking in all available information, deciding on which protective actions to take, up to the implementation of protective action, local knowledge and experience considerably influences the decision-making process of Tumanians in that they heavily reflect and recall their memories from past flooding events to determine how serious the threat is, how much they can cope with the threat, and what best course of action to take to respond to the threat.

Moreover, while official broadcasts are sought and useful, particularly that of Rescue 161's water level monitoring livestream, environmental cues (e.g., flood water level monitoring in the river and streets) and social cues (e.g., behavior of neighbors and word-of-mouth warnings) are more accessible, real-time, and, thus, more exhaustively utilized by local communities, especially those residing in the lowest areas of Tumana, lying adjacent to the river. These communities have a common understanding that they must help and look out for one another during times of flooding disasters, and as such, have established their own protective behavior and adaptive responses to flooding, such as checking in with neighbors, sharing crucial information on water level and evacuation using word-of-mouth, planning and preparing temporary shelter with neighbors that have higher floors, among others. Ultimately, their choice on which protective action is most feasible and appropriate to take is shaped not only by warnings and recommended actions or the physical conditions of their dwellings, but more so by the complex interaction between their experiences in flooding and evacuation and socio-economic factors such as financial capacity, mobility, and their social dynamics with family and neighbors.

Moreover, the findings agree with the key argument of Lindell and Perry (2004 & 2012) that inappropriate disaster response (i.e., delayed or non-evacuation) is likely due to inadequate information rather than defective reasoning or mental processing. This is especially true for the participants of this study, in that they repeatedly mentioned that, during times they did not evacuate, it was because they did not expect the flood or the amount of rainfall to be as it was at the time of great and unprecedented typhoons such as Ondoy and Ulysses. This implies that since the residents did not have prior flood experience as intense as these typhoons, their perception of the flood risk was not as serious and was underestimated by the community, which resulted in complacency and delayed or non-evacuation. Many of the participants expressed regret in their choice not to evacuate, as it caused them to incur losses in property and their lives. This led some to adhere religiously to the Alert System and Flood Protocol of the city, and others to implement their own adaptive measure – to reconstruct and elevate their homes by adding more floors.

To sum up, the findings of this study supplement Lindell & Perry's (2004 & 2012) argument, as it was found that there were more reasons as to why individuals tend to put off or forego protective actions. For Tumanians, individuals and families tend to delay the implementation of the recommended protective action (i.e., to evacuate):

- To protect themselves or their properties from larger, more complex, and longer-term challenges, such as poverty. In this scenario, the level of perceived risk from flooding is still acceptable and less than that of the effort, cost, and time it takes to evacuate, which implies leaving their things and homes.
- Because they believe they are safer and more comfortable at home.
- Because they believe others need it more.
- Because they are physically and financially unable to evacuate.

6.3 Moving Toward a Localized and Responsive Flood Resilience Policymaking

The case of Tumana, Marikina, particularly on the city's development and implementation of its Flood Protocol, illustrates how local knowledge and collective experience can be effectively integrated into formal policies through participatory governance frameworks, such as the WoS approach, and how, in turn, it can enhance the effectiveness and appropriateness of official protocols. Furthermore, it shows evidence that decisive, consistent, and transparent leadership fosters public trust and confidence in the government and policies. The findings magnify the mutual importance of building public trust and confidence, and strong leadership and political will in the effective implementation not only of the flood protocol, but of other local plans and policies. Moreover, it reveals that utilizing the WoS approach in governance, which values participation and inclusion, promotes collective ownership and responsibility for policies and protocols, and encourages the community's adherence and commitment to the same. Overall, the study's findings illustrate the crucial role of local knowledge and collective experience in establishing effective, adaptive, and sustainable flood management strategies in flood-prone, impoverished, urban communities such as Tumana.

6.4 Policy Co-Creation in Flood Resilience through Participatory Governance

Local knowledge and experience, in that they are lived and influenced by environmental, social, and other conditions, can and will evolve over time. Such changes cannot be captured by controlled scenarios and static assumptions that quantitative studies

heavily rely on. Understanding the evolving nature of local knowledge and experience, and capturing the same through research, enables scholars to understand previous and present local practices that have been feasible and effective for local communities in coping with disasters. As proven by Marikina and *barangay* Tumana, these resources have contributed greatly to establishing long-term resilience and community-building efforts, even and especially in flood-prone and densely populated communities such as Tumana. This community-established Flood Protocol ensures that even despite the persistent, recurring, and intensifying flooding experienced by Tumana and other flood-prone areas in Marikina, damage and losses in infrastructure, property, and lives are reduced significantly.

Aerts et al. (2024) argue that communities in flood-prone areas remain ill-protected due to adaptation gaps, such as constraints in cost, institutional, and behavioral factors that structural solutions require. Moreover, Chang (2020) found that disasters can threaten large and smaller communities just the same; however, the impacts of these disasters on smaller communities, as well as the demands for recovery, are much larger, as these communities have fewer resources and capacity to address the flood risk. The same can be said for communities like Tumana, where relocation is just not possible, structural improvements and flood management projects will not be enough to reduce the flood risk for the community that is projected to worsen due to climate change over the coming years. On the other hand, this study emphasizes that a *collective* disaster experience, that is one that is shared at an individual and institutional level, plays a significant part in the implementation of flood policy directives by local governments. The findings agree with the evidence from Brody et al. (2009) and White & Richards (2007), which demonstrated that in the US, local governments harness knowledge from their experience with floods, and that in the UK, those with flood experience had implemented flood resilience policies differently than those without. The study also found that since flood protocols have been informed by the lived experience of the locals, the implementation of the same was easier in that public uptake and support were easily harnessed due to the shared experience of flooding in Marikina. This agrees with the argument of Dilling et al. (2017) that the shared experience of disasters within a community makes it context-specific, and thus, may bolster public support for disaster adaptation and resilience initiatives.

In this regard, adaptation grounded on local knowledge and collective experience becomes paramount. This shift in perspective entails a focus on factors such as informal coping mechanisms and building emotional resilience that are vital in understanding long-term resilience and recovery for high-risk and impoverished communities like Tumana.

Solely focusing on quantifiable factors may overlook potential adaptive community-based innovations and tag them as “ineffective” due to their informal nature. Such measures can include locally established evacuation routes, informal alert and warning systems, and various forms of communication in disaster scenarios that can potentially be more effective and feasible for the local community than official protocols.

6.5 Practical and Policy Implications

The findings of this study emphasize the value of local knowledge and collective experience in shaping the protective actions and behaviors of vulnerable populations, particularly of low-income households in low-lying areas such as Tumana during flooding events. It further emphasizes the value of genuine participatory governance through the WoS approach, which is inclusive not only in the consultations done for policy formulation but especially in policy execution and implementation. In this regard, the study argues that local knowledge and collective experience are essential inputs that must be utilized and integrated into formal disaster resilience plans, protocols, and policies to ensure their legitimate, consistent, and sustainable implementation during disasters. Lastly, as shown by evidence, making use of the WoS approach to establish and implement the Flood Protocol enabled better coordination and communication, swifter response, and established a tight-knit community during flooding events.

The city’s Flood Protocol offers an essential framework and validation for the integration of local knowledge and experience in formal policy through the application of the Whole-of-Society approach. However, the effectiveness of such integration can be measured by the extent to which these plans, policies, and protocols resonate with and are appropriate to the local community, which is outside the scope of this study. The findings underscore that the validation of informal coping strategies as potential forms of adaptive measures to flooding is fundamental in establishing a more inclusive and localized flood risk management system in Tumana. In this regard, the study findings have important policy and practical implications for community-based and locally informed flood resilience and governance, particularly in operationalizing the participatory governance approaches, such as WoS, in local DRM policy:

- a) **Recognition and acceptance of the value of local knowledge and experience in disaster risk management and planning** - This case study highlights the need for formal flood resilience plans, policies, and strategies to draw upon the lived realities

and collective experience of those most affected. This is essential to find and improve on the gaps and identify which actions were most applicable, effective, and feasible for those affected by the flood. Tumana reveals that improving a community's resilience from a persistent and recurring threat such as flooding requires more than just the dissemination of alerts, building flood-resilient infrastructure, and recommending protective actions like prescriptions. Establishing sustainable community-based resilience strategies requires the integration of local knowledge and experiences, and the recognition of their informal adaptive strategies as legitimate solutions to flooding.

- b) **Recognition and acceptance of 'informal' coping mechanisms in adaptive measures** – Local governments must recognize, document, and where possible, integrate informal adaptive coping strategies into formal and official flood resilience plans and policies as these actions often offer more practical and appropriate solutions that are more aligned with the social, economic, cultural, and historical realities of the affected communities.
- c) **Operationalization of genuine participatory governance in DRM policymaking** – Community-based and locally-informed flood resilience calls for authorities to move beyond mere consultations and validations with communities and toward the co-creation of knowledge and solutions for disaster risk management and climate change adaptation. The WoS enables the active involvement of the community through inclusive governance in which local leaders are empowered and enjoined to participate in DRM committees where they can influence the design, implementation, and monitoring and evaluation of plans, programs, and policies on flooding. In doing so, local governments will be able to tailor evacuation and adaptation strategies to reflect local knowledge and experiences and accommodate the community's protective behavioral patterns.
- d) **Improvement of evacuation camp conditions based on feedback from the community** – Enhance the safety, security, privacy, cleanliness, and overall dignity of evacuation centers to encourage those most affected by floods to evacuate religiously and promptly. Addressing the root causes of their negative experiences, such as overcrowding, security concerns, and poor sanitation concerns, among others, can restore the public's trust and confidence in these camps and encourage their adherence to the evacuation protocol. Ultimately, this will ensure their safety

during times of intense and widespread flooding and reduce the demand for rescue operations.

- e) **Development of context-sensitive and locally informed risk communication strategies** – Information is essential and can be a matter of life-or-death during crisis situations such as flooding, hence, the information content along with the mode of distribution should be tailor-fit and appropriate to the audience being targeted. Local governments must not solely rely on traditional forms of media and distribution strategies; rather, they should utilize these with other means of information dissemination, such as social media, livestreaming, public announcements, among others. For Tumana, since many rely on word-of-mouth announcements, personal experience, and social cues to determine their course of response toward the threat of flood, information campaigns should be redesigned to be aligned with these communication channels and champions. It is also important to address gaps in communication technologies (e.g., lack of sirens, radios, and other communication devices) and misunderstandings about the formal protocols to ensure proper compliance in the future.
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Chapter Six: Discussion and Policy Implications

Chapter Summary

This chapter provided an interpretation of the study findings, guided by the study's analytical framework, which integrates the PADM (behavioral lens) and the WoS (policy lens). It began with a recap of the influence of local knowledge and collective experience on the protective behaviors of individuals in flood-prone urban poor communities and emphasized the practical importance of integrating these assets into local flood resilience policies. It compared the study's findings to existing literature, focusing on how local insights can be embedded into policies through participatory governance models to enhance community-based flood resilience. This chapter places Marikina City, the larger politico-administrative unit within which *barangay* Tumana belongs, and its Flood Protocol as a best-practice example of the operationalization of inclusive, participatory, and locally informed flood governance. This chapter closed with a synthesis of the practical and policy implications of the study findings and a call for the application of bottom-up strategies to disaster governance.

Chapter Seven: Conclusion and Recommendations for Further Studies

7.1 Chapter Overview

The preceding chapters presented the interplay between local knowledge and collective experience, along with other socio-economic factors that play a critical role in shaping the protective behavior of Tumanians in the face of flooding. Residents who reside in vulnerable and hazardous areas like Tumana, and who have long lived with the recurrent and persistent threat of flooding, do not simply react to the threat and become victims of it; rather, they have become active agents of their protection and have developed improvised ways to protect themselves from the impacts of flooding. These improvisations are rooted in their collective experiences, evolving knowledge of flooding, and tight social networks that have grown stronger over time. Through time and experience in Tumana and Marikina City, these informal coping mechanisms, albeit still considered informal, have slowly been acknowledged and recognized as adaptive measures to flooding. This underscores the importance and value of embedding local knowledge and lived experiences into formal policies through inclusive and participatory models of governance, such as that of the Whole-of-Society approach. Having explored these areas of protective behavior and disaster risk management through the lenses of the PADM framework and the WoS approach, this final chapter concludes the study, reiterating the study's purpose, addressing the central research inquiry by synthesizing the study findings, and suggesting areas for further research.

This study aimed to explore the ways in which local knowledge and collective experience shape a community's protective action against flooding, along with how these local assets can be integrated into formal community-based flood resilience policies through participatory governance principles such as the WoS approach. The study was guided by the central question: "How can local knowledge and collective experience inform protective behavior and formal policies against flooding?". In answering this question, the study used a qualitative research design that drew on KIIs, FGDs, and field observations in the low-lying and flood-prone area of Barangay Tumana, Marikina City, Philippines. Data collected was analyzed using Braun and Clarke's (2013) six-step thematic analysis and with the assistance of the qualitative software, MaxQDA, guided by Lindell & Perry's (2004 & 2012) PADM theory and the WoS approach.

7.2 Conclusion

Barangay Tumana's experience with flooding has grown from a complex matter of a persistent environmental hazard to a lived reality that has been shaped by social,

environmental, economic, and even psychological dynamics of its residents. The flooding in Tumana has been embedded deep within the social fabric of the community, which has altered their lives in many ways. Still, despite being one of the most flood-prone localities in Marikina City, Tumana remains a preferred place of residence due largely to familial ties, affordability, the simplicity of life, the lack of options due to poverty, and more notably, the normalization of flood risk (i.e., being used to the flooding in Tumana). Their motivations to stay, especially their sense of familiarity with the flood risk, play a part in informing how Tumanians perceive the flood threat and implement protective behavior against it.

7.2.1 Local Knowledge and Experience in Flood and Individual Protective Behavior

The study found that the decision to implement protective actions against flooding hinges largely on experiences and local knowledge on floods, their perceived coping capacity, and perceived ability to carry out the protective action. Tumanians implement protective actions at three phases of flooding: before, during, and after. Actions taken before the flood are preparedness mechanisms, actions taken during the flood are response/coping mechanisms, and actions taken after the flood are adaptation mechanisms. Evidence has shown that Tumanians generally have two protective action patterns that they choose to navigate around flooding: 1) formal evacuation, and 2) seeking refuge at home and implementing informal, community-based coping strategies. While the initial step of these action patterns begins with preparedness measures (i.e., securing personal belongings), the following decision, which has to do with response/coping mechanisms (i.e., the place of refuge) varies. Either decision, whether to leave for camps or stay at home, is a product of a deeper reflection of their experience of flooding, experience in evacuation, and their evaluation of the logistical and material requirements of the action (i.e., height and location of their dwellings, mobility, and comfort and safety), and the way they want to help others (i.e., altruism).

In this regard, while risk perception is an important determinant of protective action, other perceptions must not be disregarded. A critical insight that emerged from the study is the role of their perception of evacuation, formed by past experience in evacuation, in shaping future protective action decision-making. Ultimately, the role of past experiences in evacuation camps considerably affects their decision-making on where they intend to seek refuge from flooding (either at home or in camps). For some who experienced safe, secure, comfortable, and supportive environments in the camps, evacuation represents a clear and

viable location for refuge and provides access to essential services. For others whose experiences were not so favorable, the camps symbolize trauma, discomfort, and indignity, which point them towards alternative, often improvised, protective actions and coping strategies.

These improvisations are rooted in locally established knowledge on flooding and social networks, which are essential for vulnerable and marginalized sectors of society who often have little to no access to basic services. Moreover, the study reveals how different nuances of altruism can determine decisions to evacuate or not, where some are motivated to evacuate to be in service to others, while others are motivated to seek shelter at home by giving way to others who need the space and services more. These local responses, albeit informal and improvised, such as building additional floors, word-of-mouth communication, using makeshift flotation and sheltering devices, and leveraging neighborhood support systems, demonstrate Tumanians' tight-knit community and collective resilience. It shows that they are not mere passive victims of flooding and consequent recipients of aid, but rather, are active agents that seek and provide protection to themselves, their families, and their neighbors. Their localized coping strategies, which are grounded in experience, memory, and trust, are often preferred and deemed more ideal than formal protocols and expensive structural interventions.

7.2.2 Lessons Learned and Good Practices in Flood Governance

For the Philippines, being an archipelago means that each region has unique geographic and demographic characteristics that must be considered in developing programs and strategies to adapt to these disasters. These conditions underscore the need to incorporate the people's knowledge and experiences to build on their existing capacities to develop disaster preparedness and coping strategies appropriate for their local communities. The findings revealed that the effective implementation of flood resilience plans and protocols must not solely depend on technical solutions, but rather, should be a combination of empirical research and practical solutions that are drawn from the lived experiences of the most affected.

Different communities share different histories, cultures and customs, values, traditions, and socio-economic conditions that influence their experiences and form their perceptions of risks to disasters. For this reason, communities may interpret risks differently from others. As such, paying attention to how these factors can affect the effectiveness of formal risk reduction measures is essential in building sustainable community-based flood

resilience. For Tumana their perception of the flood risk in their locality was shaped greatly by their collective experience and knowledge of flooding, and these factors have played a significant role in shaping how they protect themselves, what actions they are willing to take, and how quickly they act on them in the face of a flooding disaster.

7.3 Recommendations for Further Studies

While the study provided rich qualitative insights and harnessed experiences related to the informal coping mechanisms and adaptive measures that form Tumana's community-based flood resilience landscape, it is not without limitations. For interested scholars who intend to build on the study's findings, several avenues for further studies remain.

First, more FGDs with a larger sample that accounts for a wider and larger demographic can provide more disaggregated information by age or gender and can potentially reveal unique experiences or action patterns from specific groups of individuals. It can also reveal if and how factors such as age and gender can influence protective behaviors against flooding. **Second**, a comparative study across different communities within Marikina or accounting for other larger flood-prone areas in Metro Manila (e.g., Quezon City or Manila City) could help establish whether the behavioral patterns observed in Tumana are unique or part of a broader socio-cultural response across urban poor communities in the Philippines. **Third**, longitudinal studies tracking changes in behavior, risk perception, and institutional trust over time, especially considering the rapidly changing climate and more frequent flood events, could provide valuable insights into how behavioral responses or protective action decision-making can evolve with an area's exposure to flooding and adaptation to the same. **Fourth**, a quantitative validation of the PADM model and WoS approach in the Philippine context by generating measurable data, even in the context of *barangay* Tumana, could strengthen the findings of the study, particularly on how local knowledge and experience influence the protective behavior of individuals and how these assets can contribute to establishing effective, adaptive, and sustainable community-based flood resilience. **Fifth**, if possible, studies that focus on policy impact assessments to evaluate how the integration of local knowledge and experience into formal policies and protocols affects the outcomes such as evacuation adherence, property loss, lives saved, demand in rescue operations, or recovery time for affected communities can shed light on the inquiries on the effectiveness of formal policies that are grounded on local knowledge and collective experience.

Ultimately, this case study of Barangay Tumana does not assess and evaluate the effectiveness of their flood policies or measure whether informal coping mechanisms are better than formal recommended actions; the findings still reveal that sustainable and adaptive community-based flood resilience cannot be achieved through top-down policies or recommended actions alone. It requires a recognition of the value of local knowledge and experience in DRM, a holistic understanding of the socio-economic and psychological aspects of vulnerability, and a commitment to genuine participatory governance to ensure that local contexts and experience are accounted for in policymaking. Furthermore, this study provides an executable method of integrating LK and CE into policy through participatory governance by highlighting Marikina City and the *barangay* Tumana community-based and locally informed Flood Protocol as a best practice example for other local governments and flood-prone communities.

7.4 Study Limitations

Like many other studies, this paper is subject to limitations. Firstly, the case study relies on self-reported and self-assessed evaluations of disaster risk management knowledge, skills, and experience, which may be overstated or understated by the respondents due to several personal biases. Additionally, the elements in the PADM model were assessed based on prospective experiential and observational studies and are, therefore, subject to biases. This study further acknowledges the limitation of available data, particularly the lack of disaggregated information by gender and age, simply because the study aims to collect collective knowledge and the shared experiences with the community at large as a unit of analysis rather than specific individuals. In this regard, the analysis may overlook how these factors specifically influence flood protective behaviors of different demographic groups.

Moreover, the data acquired largely depended on the researcher's accessibility to the respondents and the environmental conditions at the time of collection, making the retrieval process vulnerable to changes in both access and environmental conditions. Secondary data from documents shared by the key informants and previous studies were consulted, where possible, to counter these limitations. Even though this information from supplemental data was not directly incorporated into the primary thematic analysis, these sources helped fill the gap in understanding the impacts of flooding on the residents of *barangay* Tumana. Moreover, the researcher aimed to address these limitations through triangulation, that is, by collecting primary data from multiple sources, such as from an institutional perspective through the KIIs, the community perspective through the FGDs,

from personal observations through field observations, and from secondary data from national, local, and international agencies. This allowed the researcher to achieve a richer and broader understanding of social dynamics and understandings of the residents' protective behavior against flooding, balance out potential biases from responses, and, essentially, validate the study findings.

While these limitations exist, the study findings still provide important insights into the overall understanding of the local knowledge and collective experience that shape community-based flood resilience. Further investigations using larger and disaggregated data sources and quantitative testing techniques are recommended to improve the accuracy, relevance, and impact of the findings.

To close, this case study reveals that the best policies, no matter how intricate and comprehensive, will remain futile without the commitment and cooperation of all sectors of the community, especially during disasters such as flooding, where resource sharing and social networks are vital for survival. It goes without saying that state authorities, private institutions, and local communities must work together, not in competition but in partnerships, to form meaningful, sustainable, responsive, and resilient outcomes that reduce impacts and losses from disasters for all sectors of society.

Chapter Seven: Conclusion and Recommendations for Further Studies

Chapter Summary

The final chapter summarized the study's key findings about the role of local knowledge and collective experience in shaping individual protective behavior, flood management protocols and policies, and ultimately, community-based flood resilience. It presented final conclusions and actionable recommendations for further studies that interested researchers may pursue to advance the understanding and integration of local knowledge and experience in disaster resilience policies and suggest academic inquiry into the effectiveness of local disaster resilience policies based on local insights, experiences, and contexts. This chapter is concluded by a brief discussion of the study's limitations and how these were addressed through triangulation and verification with secondary data.

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Annex A: Interview Guide

Interview Guide

- I. **Introduction**
 - a. Basic information: name, organization, university
 - b. About the study
 - i. Topic: About the influence of local knowledge and experience to protective behavior against flooding; how to integrate LK and E into formal plans, protocols, and policies
 - ii. Purpose:
 1. To understand how local knowledge and experience influence protective behavior against flooding and
 2. To understand how to best embed these assets into formal policy using participatory governance approaches
- II. Request for data and **verbal consent** to:
 - a. Record/audio tape interview
 - b. Transcribe the interview and use the data for the thesis
 - c. Store data in an encrypted local folder on PC
 - i. Note: The data will only be used for the sole purpose of completing the thesis and will be carefully **disposed of** upon completion of the study.
- III. Assurance of **anonymity, voluntary participation**, and protocol for withdrawal
 - a. Participants' anonymity is secured and assured from data collection to reporting. All identities will not be disclosed and noted in the transcripts and manuscript.
 - b. Participation in the study is purely **voluntary**, and participants can withdraw at any point in the interview/FGD. If the participant decides to withdraw after the interview/FGD, their insights will be removed from the data set of the study.
- IV. Request for supplemental data/other focal persons who may be interested in participating in the study
 - a. Supplemental data (maps, local ordinances, plans/protocols for flooding, historical data)
- V. Interviewee criteria
 - a. Disaster risk management (DRM) professionals and practitioners
 - b. Those involved in flood management efforts, with relevant expertise and first-hand experience on floods in Marikina/Tumana
- VI. Data needed from Interview:
 - a. Response initiatives or crisis management strategies implemented during devastating flooding incidents in the area in the past;
 - b. Current flood preparedness strategies and initiatives employed by the local authorities that may or may not involve direct community engagement and participation;
 - c. The current risk communication strategies and warning systems, particularly for flooding, utilized by the local authorities;
 - d. The effectiveness of these strategies in reaching and encouraging flood preparedness behaviors of residents in barangay Tumana (if available); and
 - e. The challenges encountered in implementing these strategies and potential areas for improving community-based resilience efforts.

Annex B: FGD Guide

FGD Guide

- I. **Introduction**
 - a. Basic information: name, organization, university
 - b. About the study
 - i. Topic: About the influence of local knowledge and experience to protective behavior against flooding; how to integrate LK and E into formal plans, protocols, and policies
 - ii. Purpose:
 1. To understand how local knowledge and experience influence protective behavior against flooding and
 2. To understand how to best embed these assets into formal policy using participatory governance approaches
- II. Request for data and **verbal consent** to:
 - a. Record/audio tape interview
 - b. Transcribe the interview and use the data for the thesis
 - c. Store data in an encrypted local folder on PC
 - i. Note: The data will only be used for the sole purpose of completing the thesis and will be carefully **disposed of** upon completion of the study.
- III. Assurance of **anonymity, voluntary participation**, and protocol for withdrawal
 - a. Participants' anonymity is secured and assured from data collection to reporting. All identities will not be disclosed and noted in the transcripts and manuscript.
 - b. Participation in the study is purely **voluntary**, and participants can withdraw at any point in the interview/FGD. If the participant decides to withdraw after the interview/FGD, their insights will be removed from the data set of the study.
- IV. Request for supplemental data/other focal persons who may be interested in participating in the study
 - a. Supplemental data (maps, local ordinances, plans/protocols for flooding, historical data)
- V. Interviewee criteria
 - a. Those who have lived in Barangay Tumana, Marikina, for at least 5 years
 - b. Those that had first-hand experience of flooding in Tumana
 - c. Those who belong to youth groups, social groups, or volunteer groups
 - d. Those aged 18 and above
- VI. Data needed from FGD:
 - a. Their perceptions of flood risk and past experiences with flooding;
 - b. Their experience and emotions in times of the worst flooding incidents in the area;
 - c. The preparedness and protective actions/behaviors they have taken in the past incidences of flooding and the motivations (that promote) and setbacks (that discourage/delay) behind these actions;
 - d. The sources of disaster/flood information that they rely on and are freely accessible to them, along with those that they relied on but are no longer available to them;
 - e. The channels and modes of communication that they rely on and are freely accessible and usable to them, along with those that they relied on but are no longer available to them;
 - f. The challenges they have encountered in communicating/sharing or receiving disaster/flood information with others and the local government;

Annex C: Code Book

List of Initial Codes and Categorization based on PADM and WoS

Initial Codes	Definition/When to Use	Consolidated Code based on PADM and WoS	Example
Normalcy in Tumana	Insights on the simplicity of life in Tumana	Life and normalcy in Tumana	<i>Just a simple life. As long as my kids are here, and that we can eat three times in a day. At least with that, I am content. I don't look for grand things, I'm fine as long as my family is safe and that we get to eat every day, I'm happy that we are safe from tragedies. That's the best. You shouldn't obsess over material things because they're not really important. What's important is the safety of the family and the food you need to eat. That's just for me. (FGD Participant, Local Volunteer Group A)</i>
Familial roots and social relations	Insights on family ties, structures, and social networks that help shape their attachment to place and establish sense of community		
Low cost of living	Insights on the affordability of living in Tumana		
Proximity to basic needs	Insights on Tumana offering access to essential services and facilities (e.g. work, school, church, market), the convenience of accessibility		
Lack of options due to poverty	Insights on the economic and financial limitations of the people which prevents them		
Tumana as a well-established residential area	Insights on Tumana as a long-established and settled community with structure and social routines	Susceptibility of Tumana to flooding	<i>... but ever since them, since I lived here in Tumana, we got used to it. I would say, "Oh, that's just a flood, that's just there, but us (referring to her family), we will just stay here, in this high area. We're safe here". Im fine with that, that's what I believe for my family. (FGD Participant, Local Volunteer Group A)</i>
Being used to the flood	Insights that flooding is an accepted part of life in Tumana		
Information intake	Insights on how Tumanians receive flood-related information	Pre-decisional processes	<i>As for us, we can read the Facebook posts of the Marikina PIO, Marikina news, Rescue 161, because that's where you can see when you should be alert, when you need to evacuate, when you should start packing your things. Us Tumanians, we're used to it, we're immune to this [flooding]! (FGD Participant, Community Group)</i>
Information evaluation/comprehension	Insights on how Tumanians assess the reliability, relevance, and urgency of the information, and the way they interpret messages and warnings		
Environmental cues	Insights on the physical signs of flooding (e.g., rising water levels)		
Social cues	Insights on observed signs of flooding from the behavior of neighbors or family		

Initial Codes	Definition/When to Use	Consolidated Code based on PADM and WoS	Example
Official warnings	Insights on official sources of flood information from authorities like media, PA announcements, or official livestreams		
Socio-economic factors	Insights on personal resources like physical and financial resources to prepare for/respond to flooding	Risk Perception	<i>And then, I remember during that time, I had no choice. Mama was not around, and my younger sibling (4 years old) was there with me, I was carrying him. I said, “mama’s not yet around, where is mama?”. Of course, I was nervous and anxious because the flood water was very high already, if it reached us, then we would die. So at the young age of 7, I said, “ah, alright, this is what I will do”. I had a backpack which I put in front of me, then I carried by sibling on my back. I said, “we will climb upstairs, to the second floor of this house”. (FGD Participant, Young Adults Group)</i>
Psychological/Experiential factors	Insights on personal factors like psycho-emotional impacts (e.g., stress, trauma) and experience from direct encounters of flooding		
Socio-economic factors	Insights on personal resources like physical and financial resources to prepare for/respond to flooding	Coping Appraisal	<i>We should always think not only about ourselves but our families. We should think of that first. If our family can swim, can your family members swim through the flood if ever you did not evacuate on time, right? We need to think about the welfare of our families. (FGD Participant, Young Adults Group)</i>
Psychological/Experiential factors	Insights on personal factors like psycho-emotional impacts (e.g., stress, trauma) and experience from direct encounters of flooding		
Socio-economic factors	Insights on personal resources like physical and financial resources to prepare for/respond to flooding	Search for Protective Actions	<i>But now, when there is an incoming typhoon, or when we experience typhoons, the parents or adults, we would see them evacuating, they would head to the evacuation centers maybe because, of course, brought by the trauma from events that happened before, events caused by flooding. (FGD Participant, Young Adults Group)</i>
Psychological/Experiential factors	Insights on personal factors like psycho-emotional impacts (e.g., stress, trauma) and experience from direct encounters of flooding		

Initial Codes	Definition/When to Use	Consolidated Code based on PADM and WoS	Example
Action patterns (evac/non-evac)	Insights on common strategies and action routines that Tumanians follow to reduce the impacts of flooding	Protective Action Decision Making	<i>For us, as long as there's an announcement of Alert Level 1, we will get ready because we already know that. The awareness of everyone. Clothes, medicines, food. We pack them in plastic bags or sacks. We don't bring more than we need, just those. Those important things like food and medicine should be there. Sometimes, even just clothes are enough since we will just return to our homes the next day. Just that we don't like bringing too much because it will eventually get wet in the flood when we brave the water. (FGD Participant, Local Volunteer Group A)</i>
Formal evacuation	Insights on the official protective behavior sanctioned by government that is to evacuate		
Informal coping strategies	Insights on unofficial, informal, and improvised community-established strategies used by Tumanians to manage impacts of flooding		
Perception of Evacuation	Insights on their personal views on their experience in evacuation (e.g., necessity, comfort and safety, accessibility, etc).	Action variation drivers	<i>But us, we really don't like to evacuate. We just ask our neighbors to let us seek shelter at their place. I would explain to my children that we don't need to squeeze our family in the excessively crowded evacuation sites. Because first of all, there are so many people in evac sites, it's really difficult. And then you'll add on to the crowd and chaos? So I tell them, "let's just stay here, let's just climb a tall house nearby". And most of all, I want to see my children, in the evacuation site this is difficult. (FGD Participant, Local Volunteer Group A)</i>
Dwellings	Insights on the location, conditions, and characteristics of their homes/dwellings		
Mobility	Insights on their physical ability or means, and that of their families, to move before, during, and after flooding		
Comfort and Safety	Insights on whether Tumanians have felt secure, comfortable, and at ease during evacuation/in evacuation sites		
Altruism	Insights on their concern for others/others' well-being during flooding		
Documentation	Insights on writing/recording/codifying experiences and other practices on flood resilience	Institutionalization	<i>He wanted to institutionalize everything. Everything should be written because most of the managers, there are those that "graduate" (i.e., separate from the</i>
Establishing legal basis	Insights on the establishment of legal frameworks and ordinances to support flood resilience policies and plans		

Initial Codes	Definition/When to Use	Consolidated Code based on PADM and WoS	Example
IEC Campaigns/Rollout	Insights on the IEC campaigns and awareness-raising initiatives for the public in relation to flood awareness and knowledge		<i>organization for better opportunities or retirement), some retire or leave for greener pastures, and he wanted the protocols to be passed down properly. So now, we have institutionalized it, and we already have ordinances regarding that. (Interviewee 1)</i>
Whole of Society	Insights on the inclusive and participatory approach to governance involving all sectors of society	Whole of Society	<i>The secret to that is the participation of the community. All the programs, all the best programs of the government, will be useless if the community does not participate well. This is what I would always say when I am asked what Marikina's secret to resilience is. Marikina's secret is the partnership between the community and the government. I believe that's our best practice, not only with disaster management but even with cleanliness in all of the structures of Marikina. Because the people are participating in the programs. (Interviewee 1)</i>
All of government	Insights on the coordinated efforts and active involvement of all levels of governance in flood management		
Community Engagement	Insights on the active engagement and involvement of ordinary citizens in policy execution		
Information dissemination	Insights on the distribution of flood information to educate/inform citizens about flood		
Capacity building	Insights on activities done to enhance the skills, awareness, and resources of communities and residence to better manage flooding		
Common-sense government	Insights on proactive management established in Marikina, and a forward-looking governance	Proactive Management	<i>The concept that there is a government working for them. We need to establish trust. That the people will trust the government to work for them. ... Here, people openly and freely complain. We elevated their taste in governance, in the government. So, they themselves will initiate, because we (in government) cannot monitor everything. We cannot see all corners of Marikina, but we can count on their help to tell us. So whatever they tell us that we must look into or work on, we do it. This is what the mayor calls "common-sense" government. (Interviewee 1)</i>
Leadership & Political Will	Insights on the administration's commitment to addressing flooding, transparency, and consistency in providing services and enforcing policies		
Public Trust & Confidence	Insights on the community's perceived competence, trustworthiness, and reliability on the government		
Experiential Consent	Insights on the use of local knowledge and experience in policy development or the alignment of local policies to the community's lived experiences		

Annex D: Method for Analysis

- 1) **Data familiarization** – In the early parts of this stage, the researcher needed to revalidate the transcripts collected from the FGDs and KIIs to ensure there were no missing, unclear, or misleading transcriptions collected from the sessions. A deep immersion of the data, which involved reading and rereading of the transcripts, was done to acquire a more holistic and comprehensive understanding of the data, combined with preliminary notetaking of potential recurring patterns and concepts that were observed from each document and across the data set.
- 2) **Generation of initial codes** – Once the researcher was familiar with the data, labels and codes were assigned to segments in the transcripts that were deemed relevant to the research question and analytical framework of the study using open coding.
- 3) **Refinement of codes** - Once the initial run was completed, a comprehensive code list was generated. The comprehensive code list was then refined to reduce duplication of codes and consolidate the codes used for the study. Once the consolidated code list was completed, a rerun of the data using the consolidated code list was done. Refer to the code book for the full list of refined codes used for the study.
- 4) **Code categorization and the search for themes** – In this stage, the codes were grouped and categorized into more general themes that captured a clear relationship between the codes. Deductive thematic analysis guided by the PADM model and WoS was conducted to find prominent themes from the data. The themes that emerged were selected because they reflected notable patterns and meanings within the data and were relevant to the research question of the study.
- 5) **Review and refinement of themes** – To consolidate and analyze the data even further, the themes that were generated were reviewed and revised to ensure that there was no duplication and that the themes were clear, distinct, and relevant to the research question of the study.
- 6) **Naming and defining themes** – The final step of the thematic analysis used in the study was to define each theme, find supporting and/or contradictory evidence for each theme, and explain their relevance to the research question of the study. See the next page for a consolidated list of codes, themes, and theme descriptions.
- 7) **Report generation** – The findings generated, including the themes, sub-themes, and supporting evidence for each theme, are then laid out in chapter 5.

Annex E: Themes Generated based on PADM and WoS and Descriptions – LK and CE on Flood and Protective Behavior

Initial Codes	Consolidated Code based on PADM and WoS	Themes	Description
Normalcy in Tumana Familial roots and social relations Low cost of living Proximity to basic needs Lack of options due to poverty	Life and normalcy in Tumana	Local Knowledge and Experience of Tumanians	This theme captures the deeply embedded understanding, familiarity, and lived collective experiences of Tumanians with persistent, recurring floods. It reflects how long-term residency, tight-knit familial and social ties, socio-economic barriers, and a sense of normalcy despite flooding have shaped their daily lives. This theme shows that flooding is seen as a routine occurrence and part of the trade-off for living in an area that offers a simple life.
Tumana as a well-established residential area Being used to the flood	Susceptibility of Tumana to flooding		
Information intake Information evaluation/comprehension Environmental cues Social cues Official warnings	Pre-decisional processes	Information Seeking and Sources	This theme delves into how Tumanians seek, gather, assess, and comprehend information related to flooding. It discusses their multiple sources of information from environmental and social cues, unofficial word-of-mouth exchanges, to formal warnings from authorities. It emphasizes the community's reliance on formal and informal sources to guide their protective action decision making.
Socio-economic factors Psychological/Experiential factors	Risk Perception	Risk Perception and Coping Capacity	This theme explores how Tumanians perceive the threat of flood (i.e., risk perception) and evaluate their own ability to cope with respect to their risk perception. It discusses how their perceptions are shaped by factors including physical and cognitive processing, economic capacities, housing conditions, social and familial networks, and family roles and social norms.
Socio-economic factors Psychological/Experiential factors	Coping Appraisal		
Socio-economic factors Psychological/Experiential factors	Search for Protective Actions		
Action patterns (evac/non-evac) Formal evacuation Informal coping strategies	Protective Action Decision Making		
Perception of Evacuation Dwellings Mobility Comfort and Safety Altruism	Action variation drivers	Protective Action Decision Making and Implementation	This theme captures the cognitive evaluation process behind how Tumanians decide on and carry out protective actions before, during, and after flooding. It includes both formal (e.g., evacuation) and informal mechanisms (e.g., coping strategies) and explains how past experiences, dwelling characteristics, and considerations on mobility, comfort, safety, and even altruism can shape the protective behavior of Tumanians.

Annex F: Themes Generated based on PADM and WoS and Descriptions – Influence of LK and CE on Flood in Policy

Initial Codes	Consolidated Code based on PADM and WoS	Themes	Description
Documentation	Institutionalization	Policy Development	This theme captures insights on how the institutionalization of the Flood Protocol was initiated by the City, beginning with the documentation of local experiences, referring to international and local DRM frameworks, and validating the same through participatory governance mechanisms such as meaningful public consultations, validations, and engagement.
Establishment of Legal Bases			
Based on International and Local DRM Frameworks			
Validation with the Public			
Community Engagement/Consultations with the Public and Their Experiences			
Community Engagement/Participation in Policy Implementation	Official flood protocols for local government	Policy Implementation and Information Dissemination	This theme delves into the actual flood response protocols, activities, and services by the local government in the form of their internal/inter-agency/inter-departmental operations before, during, and after flooding events. It further highlights how the local government is able to involve all of society and all of government in the conduct of its operations through the flood protocol.
Early Warning Systems, Flood Monitoring, Announcements, Risk Communication			
Traffic, Safety, and Security Operations			
Capacity Building and Awareness Raising			
Rescue, Relief, and Evacuation Operations			
Grievances and Concerns via Rescue 161			
Finding Gaps to Improve	Merging Theory with Practice and using Experiential Consent to Improve Policy	Policy Improvement	This theme explores the operationalization of participatory governance to combine local insights and lived experiences with theoretical approaches to flood resilience to constantly improve the flood protocol.
Experiential Consent			
Community Engagement/Participation in Policy Improvement			
Leadership and Political Will	Interaction of leadership and political will with public trust and confidence	Proactive Management	This theme is focused on the interaction of strong leadership and political will from the side of the government and public trust and confidence on the side of the people, how these two factors can support or undermine each other, and the implementation of flood resilience policies.
Law Enforcement			
Service Provision			
Public Trust and Confidence			
Voluntary Implementation of Policies			

NOTHING FOLLOWS

Submitted to the Faculty of the Graduate School of Governance Studies
as a Partial Fulfillment of Master's Degree of Public Policy,
Meiji University, Japan
2025

**Title of Thesis: Public sector project implementation in Bangladesh:
An inquiry into the coordination gaps of the District Development
Coordination Committee.**

Governance Program,
The Graduate School of Governance Studies

Name of Supervisor: Professor Sasaoka Yuichi

.....

Name of Author: Roy Prabir Kumar

.....

Completion in: September 2025

.....

Abstract

Proper planning and timely implementation of development projects is a major challenge for developing countries like Bangladesh. The top management selects projects based on their 'bounded rationality,' ignoring the 'full rationality' of the field, resulting in failure in the implementation stage. Implementation, Monitoring, and Evaluation Department (IMED) identifies that lack of coordination at the root level is another leading cause of project failure in Bangladesh. However, there is a designated platform to maintain inter-organizational coordination in every district of Bangladesh called the District Development Coordination Committee (DDCC).

Despite having a network mechanism for its members to meet once a month formally, DDCC fails to build horizontal relationships. Instead, the members respond vertically to their line bosses. Additionally, DDCC as an organization is also unsuccessful in communicating vertically to the top management of line ministries. Hence, the study investigates the factors hindering inter-organizational coordination at the district level and the challenges between DDCC and line ministries.

To describe the factors and challenges, the philosophical stand of this study is interpretive, and the approach is inductive, while the methodology is qualitative. Three districts were selected based on several criteria for survey, in-depth interviews, and Focus Group Discussion. Analysis and findings show that factors related to conflict versus harmony, guideline, and framework of DDCC, leadership,

facility, silo behaviour, and corruption are hindering the coordination of DDCC in both horizontal and vertical ways. The study recommends short-term, mid-term, and long-term policies to improve inter-organizational coordination of DDCC for better implementation of development projects.

Table of Contents

CHAPTER ONE: INTRODUCTION.....	1
1.1. Background of study	1
1.2. Problem statement	3
1.3. Research Objectives	8
1.4. Research Question	9
1.5. Methodology.....	9
1.6. Significance of the study	9
1.7. Structure of the thesis.....	10
CHAPTER TWO: LITERATURE REVIEW.....	11
2.1. Introduction	11
2.2. Theoretical background of coordination in policy/project implementation	11
2.3. Meaning of coordination	11
2.4. Coordination and other affiliated concepts.....	13
2.4.1. Cooperation and coordination.....	13
2.4.2. Collaboration and cooperation.....	14
2.4.3. Collaboration and coordination	14
2.4.4. Integration and coordination.....	15
2.5. Different dimensions of Coordination	15
2.5.1. Horizontal coordination	15
2.5.2. Vertical Coordination	16
2.5.3. Inter-organizational coordination.....	17
2.5.4. Intra-organizational coordination	18
2.5.5. Formal coordination.....	18
2.5.6. Informal coordination	18
2.5.7. Positive and Negative Coordination.....	19
2.6. Importance of coordination in development project implementation .	19
2.6.1. Duplication	20
2.6.2. Contradiction	20

2.6.3. Displacement	21
2.6.4. Overlapping.....	21
2.6.5. Confusion.....	21
2.6.6. Time extension and cost escalation	22
2.7. Theoretical approaches to achieving coordination	22
2.7.1. Hierarchy.....	24
2.7.2. Market	25
2.7.3. Network	26
2.8. Conceptual Framework	30
2.8.1. Negative factors.....	30
2.8.2. Positive factors	31
CHAPTER THREE: RESEARCH BACKGROUND	33
3.1. Introduction	33
3.2. Development Project's reflection on the national budget	33
3.3. Project Cycle of Bangladesh	35
3.4. The local government context.....	38
3.5. Source of allocation for local government bodies to implement projects.....	39
3.6. What happens in the implementation stage	41
3.6.1. Pre-project stage	42
3.6.2. Shortage of resources (immediately needed after approval)	43
3.6.3. Problems during implementation.....	43
3.7. Legal stand of DDCC in Development project implementation.....	46
3.8. Formation of DDCC	47
3.9. Scope of DDCC	48
3.10. Procedure of the meeting	50
3.11. Effectiveness of DDCC	52
3.12. Elected Political Leaders' affinity with DDCC	53
CHAPTER FOUR: METHODOLOGY, DATA ANALYSIS AND FINDINGS.....	57
4.1. Introduction	57
4.2. Research Framework	57
4.3. Research Design	58

4.4. Data Collection Method	59
4.4.1. In-depth interview	60
4.4.2. Focus Group Discussion	61
4.4.3. Survey	61
4.5. Sampling Method.....	62
4.5.1. Sampling for the in-depth interview	63
4.5.2. Sampling for FGD	64
4.5.3. Sampling for the survey	65
4.6. Recruiting the interviewees.....	65
4.7. Interview proceeding.....	66
4.8. Schedule and duration of the interviews	67
4.9. Data Analysis Method	67
4.9.1. Data Presentation	69
4.9.2 Data presentation and analysis.....	71
CHAPTER FIVE: DISSCUSSION	98
5.1. Introduction	98
5.2. Conflict versus harmony	98
5.3. Guideline and framework	101
5.4. Facility	104
5.5. Leadership.....	107
5.6. Silo syndrome.....	109
5.7. Corruption.....	113
CHAPTER SIX: CONCLUSION	116
6.1. Introduction	116
6.2. Conclusion	116
6.3. Value addition of this study	118
6.4. Policy recommendations	118
6.4.1. Short-term	119
6.4.2 Mid-term	121
6.4.3 Long-term.....	122
6.5. Contribution of the study.....	123

6.6. Limitations and suggestions for further research.....	123
Bibliography.....	125
Appendices	140

Title of Thesis

Public sector project implementation in Bangladesh: An inquiry into the coordination gaps of the District Development Coordination Committee.

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List of Figures

Figure 1: Horizontal coordination.....	15
Figure 2: Vertical Coordination	16
Figure 3: Consequences of no coordination.....	20
Figure 4: Activities to achieve coordination.	23
Figure 5: Hierarchical Mechanism.....	25
Figure 6: Market Mechanism.....	26
Figure 7: Network Mechanism	27
Figure 8: Conceptual Framework	30
Figure 9: Relationship between informal communication and coordination.....	32
Figure 10: Percentage of different components of Development Expenditure.....	34
Figure 11: Project Cycle of Bangladesh	36
Figure 12: Project approval process.....	37
Figure 13: Local Government structure of Bangladesh.....	39
Figure 14: Revenue and grant ratio of Gobindapur Union in the fiscal year 2022-2023.....	40
Figure 15: Comparison among five consecutive financial years on completed, supposed to be completed, and incomplete projects.	41
Figure 16: Meeting procedure of DDCC	51
Figure 17: Communication of DDCC.....	52
Figure 18: Outline of the research.	57
Figure 19: Research Approach.....	59
Figure 20: Method triangulation	61
Figure 21: Six stages in analyzing qualitative data.....	68
Figure 22: Survey respondents' profile.....	69
Figure 23: Diversification of the respondents.....	70
Figure 24: Length of the service of survey respondents	71
Figure 25: Frequency of development project discussion in DDCC meetings.....	71
Figure 26: Respondents' statement regarding the adverse impact of lack of inter-organizational coordination on development project.....	72
Figure 27: Respondents' statement regarding the capability of DDCC to improve coordination.	73
Figure 28: Factors hindering DDCC to work effectively.....	74
Figure 29: Factors positively influencing DDCC to work more effectively	75
Figure 30: Participants' statement whether there is further scope to strengthen DDCC.	76

Figure 31: Thematic map for color-coded survey data (Made by the author)	80
Figure 32: Thematic map for color-coded in-depth interview data (Made by the author)	87
Figure 33: Thematic map of color-coded FGD data (Made by the author)	90
Figure 34: Thematic map of color-coded (in-depth interview, survey, and FGD) data (Made by the author)	91
Figure 35: Color code percentage in the in-depth interview (Made by author).....	93
Figure 36: Color code percentage in the survey (Made by author)	93
Figure 37: color code percentage in FGD (Made by the author)	94
Figure 38: Comparison of plum color codes (Made by the author)	94
Figure 39: Comparison of dark blue color codes (Made by the author)	94
Figure 40: Comparison of turquoise color codes in survey, in-depth interview, and FGD (Made by the Author)	95
Figure 41: Comparison of black color codes in survey, in-depth interview, and FGD	96
Figure 42: Ratio of conflict versus harmony in survey	100
Figure 43: Graphical presentation of the views of FGD	105
Figure 44: Graphical presentation of silo syndrome in FGD, survey, and in-depth interview	110

List of Tables

Table 1: Different dimensions of coordination	17
Table 2: Characteristics of Hierarchy and Network	28
Table 3: Distribution of development expenditure in the financial year 2023-2024	34
Table 4: The in-depth interview participants from DDCC (Including NGO representative)	64
Table 5: Survey with DDCC participants	76
Table 6: Interview with DDCC members	81
Table 7: Interview with the members of the central Ministries	85
Table 8: FGD with UNO and Upazila Chairman	88
Table 9: Themes	97

List of Acronyms

AC (Land)	Assistant Commissioner (Land)
ACR	Annual Confidential Report
ADC	Additional Deputy Commissioner
ADP	Annual Development Programme
APA	Annual Performance Agreement
BADC	Bangladesh Agriculture Development Corporation
BAPA	Bangladesh Poribesh Anodolon
BCG	Bacillus Calmette-Guérin
BELA	Bangladesh Environmental Lawyers Association
BWDB	Bangladesh Water Development Board
CSO	Civil Society Organizations
DC	Deputy Commissioner
DDCC	District Development Coordination Committee
DPEC	Departmental Project Evaluation Committee
DPHE	Department of Public Health and Engineering
DPP	Development Project Proposal
ECNEC	Executive Committee of the National Economic Council
EED	Education Engineering Department
ERD	Economic Relations Division
FD	Finance Division
FFW	Food for Work
FGD	Focus Group Discussion
IMED	Implementation Monitoring and Evaluation Department
LGED	Local Government Engineering Department
MOPA	Ministry of Public Administration

MP	Member of Parliament
NCCB	Network on Climate Change in Bangladesh
NCTB	National Curriculum and Textbook Board
NEC	National Economic Council
NGO	Non-Government Organisation
PIC	Project Implementation Committee
PLSP	Public Sector Linkages Programme
PSC	Project Scrutiny Committee
PWD	Public Works Department
RDPP	Revised Development Project Proposal
RHD	Roads and Highways Department
SP	Superintendent of police
TAPP	Technical Assistance Project Proposal
UNO	Upazila Nirbahi Officers
VGD	Vulnerable Group Development
WASA	Water Supply and Sewerage Authority
YPSA	Young Power in Social Action

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CHAPTER ONE: INTRODUCTION

1.1. Background of study

Though coordination is a very common, old, and fundamental issue of public administration and organization theory, yet the government practitioners and researchers are searching for ways of better coordination where multi-actors' movements are necessary for things to be done (Bouckaert et al., 2010). From monarchy to the present era, because of its universal appeal, coordination became a "philosopher's stone" for the government to manage a diversified range of activities (Jennings & Krane 1994; Anderson 1996; Seidman 1998). The success of an organization relies on the degree of coordination it carries, where interdependence is indispensable for the required job to be done (Pandey & Ahsan, 2013). For example, educational programs such as increasing the enrollment rate will not be successful if the students are hungry or there is a communication problem with going to school (Peters, 2018). Therefore, multiple actors' involvement is necessary for the solution of problems faced by organizations as well as for the success of the organizations.

Why is coordination so important? According to Malone and Crowston (1994), coordination cannot be seen when it is working and can only be noticeable when it is lacking. Traffic jams might be the best example. Because only when it occurs, we can see the lack of coordination. In Dhaka, the capital of Bangladesh, traffic jams frequently occur due to different departments' development activities, even by blocking part of the road without informing the concerned authority. Moreover, the absence of coordination may create confusion, contradiction, conflict, overlapping, duplication, and waste of resources such as time and energy (Ahsan, 2018). In a multi-organizational setting, organizations have separate missions and different legal mandates, and sometimes they compete with each other for resources, which makes the coordination more challenging. For instance, LGED (Local Government and Engineering Department) and DDM (Department of Disaster

Management) often compete to build small bridges in local areas of Bangladesh¹ (Prothom Alo, 2024).

The concept of coordination has several dimensions, such as inter-organizational coordination and intra-organizational coordination. In public sector organizations, inter-organizational coordination requires more energy than intra-organizational coordination (Christensen et al., 2007). Inter-organizational coordination may also be vertical and horizontal. Integrating tasks at the same hierarchical level of different organizations is horizontal, whereas vertical means distributing integrated tasks at different hierarchical levels. District Development Coordination Committee (DDCC) is an inter-organizational forum that functions in every district of Bangladesh except three hill districts. All the department heads of a district meet horizontally once a month. It (as a body) can also communicate vertically to different ministries and the Cabinet Division².

Coordination in public sector organizations is more desirable in development planning and implementation than in routine work. The successful outcome of any economic development initiative highly depends on proper planning and timely implementation (Dale, 2004). Pollitt (2004) raised a very fundamental question of whether policymakers should focus more on policy ('joined-up policy design') or administration ('joined-up policy implementation'). This paper will explore both issues.

The proper planning and implementation of development projects in a scheduled time have been deemed as one of the major challenges of developing countries such as Bangladesh (World Bank Operational Policy Review, 1980; Mohammad, 2014). Evidence suggests that Bangladesh lags in completing most

¹ This kind of competition is very common in Bangladesh. Infrastructure building departments often compete with each other.

<https://www.prothomalo.com/bangladesh/district/fbrla2sa6z>

² DDCC is formed and guided by the Cabinet Division of Bangladesh. https://cabinet.portal.gov.bd/sites/default/files/files/cabinet.portal.gov.bd/page/23a901c3_e912_4606_9c49_b0c8cc7fd1f/Div%20and%20Dist%20DCC.pdf

development projects on time and within budget, resulting in huge time and cost overruns (IMED, 2022)³. Many researchers agree that the lack of inter-organizational coordination is one of the biggest reasons for such project failure (Ahsan, 2012). IMED (2022) have also identified that the problem is intensified in the field. However, in every district, there is a forum (DDCC) specified by the government for development coordination.

In Bangladesh's 2023-2024 annual budget, more than 94% of the development budget has been allocated to the ADP (Annual Development Program)⁴, which is basically a list of development projects and the yearly allocation of those projects. It means that development is ensured through the implementation of projects in Bangladesh. So, it is expected that most of the discussions in DDCC will be based on development projects. However, the analysis of DDCC meeting minutes of the Cumilla district (from 2021-2022)⁵ and the author's personal observation⁶ do not reflect it. This unexpected behavior of DDCC should have been studied. Nevertheless, there is no empirical research on why it is not fully functioning and fails to contribute to the implementation of development projects notably.

1.2. Problem statement

Bangladesh aspires to be an upper-middle-income country by 2031 and a developed country by 2041. To do so, it increases the volume of public investment every year. Public investment is more significant in developing countries like Bangladesh, where private investment is less significant. It raises the quality of

³ According to the Rules of Business, 1996 Allocation of Business (Article 32 (c)), it is the duty of Implementation, Monitoring and Evaluation Department (IMED) to monitor and evaluate the public sector development projects.

<https://imed.gov.bd/site/page/c1063994-21f0-408a-ab1f-1475d3ba0e43/History-&-Activities>

⁴ https://mof.gov.bd/sites/default/files/files/mof.portal.gov.bd/budget_mof/01ea4c84_5cd9_47be_a75d_29ec0a3fcc24/00.pdf.

⁵ The author has collected the meeting minutes and studied them.

⁶ The author has more than ten years of experience in working field administration.

'human capital' and facilitates private investment through infrastructure projects. It also creates employment and thus increases economic growth (Rahman, 2022).

However, the shocking part is that developing countries like Bangladesh are facing multi-faceted problems in managing and implementing development projects (Hamiduzzaman, 2012). A recent IMED report identified that in 2020-21 only 236 projects were timely completed against a target of 439 projects (IMED, 2021). Project revision with at least one dimension of either time extension or cost escalation has become a common phenomenon, which is also a bottleneck of development effectiveness in Bangladesh (Al-Mamun et al., 2023). Aside from time extension and cost overrun, there are other problems, too. Sometimes, the components of the projects of different ministries are the same. For example, it has been revealed by an online newspaper (Jagonewspaper24.com, 2022)⁷ that a project to protect people from thunder and lightning has been taken separately by the Ministry of Agriculture and Ministry of Disaster Management, creating duplication.

Furthermore, in some cases, the project output is there without any project outcome. In 2022, it was identified that the infrastructure work of 251 bridges has been finished without any connecting roads, which is a sheer waste of money (The Daily Industry, 2022)⁸. Moreover, some development projects have no impact on society and are unutilized⁹.

Why is this happening? Why is Bangladesh lagging behind in implementing development projects? Both academicians and consultants have identified many problems, such as faulty design, fund release delay, political and social instability, procurement delay, inflation, corruption, coordination gap, etc. (Ahmed, 2010). While there are several reasons behind project failure, the general perception is that

⁷ <https://www.jagonews24.com/special-reports/news/741579>

⁸ 'Bridge without road' has become a common phenomenon in Bangladesh and a common news in newspaper. This citation is chosen in this study because it has depicted the scenario in a large scale.

<https://edailyindustry.com/index.php?cd=2022/09/02>

⁹ <https://www.prothomalo.com/opinion/column/5lmyjihca>

coordination is a major challenge (Ahsan, 2018). In a survey done by IMED in 2022, more than 80% of respondents claimed that there are coordination gaps among the implementing agencies in the field, and more than 70% of people opine that projects are approved without proper feasibility studies and stakeholder consultation. The survey further reveals that 40% of project-related problems will be solved if the coordination is properly done in the field.

While line ministries play a crucial role in formulating projects, field administration is vital in implementing those projects. Headed by the Deputy Commissioner (DC), DDCC is the principal platform to ensure coordination among different departments responsible for project implementation and oversee the overall implementation status of development projects. Issues like land acquisition, law and order management, project location, priority identifications, and community engagement play vital roles in project selection and monitoring; district administration under the leadership of the DC has crucial roles in managing these issues.

The importance of DDCC in development project implementation is asserted through the circular number 04,00,0000,512.35.018.15-384, date:01 October 2015, of the Cabinet Division of Bangladesh:

However, the quick and successful implementation of all these development activities largely depends on the support and cooperation of other departments at the field level. Interdepartmental coordination is essential to ensure this support and cooperation. The importance of coordination at the local level is also undeniable in terms of proper project identification, reasonable project-area determination, avoidance of duplication, and proper selection of beneficiaries. In this context, the Division and District Development Coordination Committees play a very constructive role. (p. 1)

Generally, coordination can be achieved through three mechanisms: hierarchy, market, and network (Bouckaert et al., 2010). The formation of DDCC resembles a 'network' mechanism but is actually controlled by the mechanism of 'hierarchy.'

In fact, DDCC is not functioning according to its mandate. Because of the top-down approach to project selection, the coordination gap between the field-level offices and line ministries appears to be a recurring issue. Projects are being selected based on 'bounded rationality' rather than 'full rationality,' which is difficult for the central authority to achieve as they do not have enough local information (Christensen et al., 2007). The consequence of those selections sometimes bears unexpected results.

On the other hand, at the horizontal level, inter-organizational coordination (such as DDCC) is not properly working because of 'siloization'¹⁰ (Christensen & Lægneid, 2007). Organizations in silo settings evaluate individual agency performances rather than cross-cutting agendas (Bouckaert et al., 2010). As a result, there is not only a lack of coordination among DDCC members, but conflicts are also sometimes present. This kind of relationship affects the implementation of development projects.

For instance, in 2017, LGED (Local Government Engineering Department) took a project across the country named "Countrywide Rural Market Infrastructure Development Project." In Cumilla district, no physical work on this project was started in 2021. Because there was an information gap and conflict existed among inter-departments in that district. The district Collector¹¹ generally owns the local market's land on the government's behalf, whereas the district's implementing authority for this project was the executive Engineer of LGED. The fact was that the Executive Engineer never informed other members about the project in the

¹⁰ Siloization is an academic jargon in organization literature. Generally, silos are the storage units where grains are stored. These silos are separated from each other and are vertically built. Academicians find similarity between the behaviour of some organizations and these silos. The term will be detailed in the next chapter.

¹¹ The head of the district administration of a district is called Deputy Commissioner (DC). He has two other identities: one is district Collector and the other is district Magistrate. When DC deals with revenue affairs and land issues, he is called district Collector. On the other hand, when he deals with criminal offence, he is called district Magistrate.

meeting. So, the Collector's subordinates did not hand over the land to the project manager as they were not aware of any such kind of project. Only when he failed, only then the executive Engineer informed the matter to other members in the meeting. After several discussions in several DDCC meetings, it was decided to send the matter to the Ministry of Land and the Ministry of Local Government (Minutes of DDCC meeting of Cumilla, 2021)¹². It took one year more to settle the issue between the ministries. Other districts might have similar experiences. That is why this project is still ongoing even after 8 years, and the physical progress is only 55%¹³.

Considering the above context, two problems have been identified. One is the lack of inter-organizational coordination between the two departments at the district level. They could have settled the issue early. But why did the Executive Engineer not raise the issue in the DDCC even before the project was taken by the LGED? There must be some factors that hinder inter-organizational coordination at the district level.

Another problem is at the vertical level. The Local Government Ministry could have consulted with DDCC before approving the project. If they did so, the implementation of the project would be smooth. Moreover, the selection of "markets" at the local level was also controversial because there was not enough stakeholder analysis during the pre-project stage. Why did the ministry not consult with the field before project area selection?

Of the two problems mentioned above, the first problem is only among the DDCC members at the horizontal level. The main task of DDCC is to monitor, inspect, and discuss both the physical and financial progress of the development projects within the territory of a district. However, other departmental issues get priority in the meeting rather than focusing on the above issues. The focus of the

¹² This information was gathered from the analysis of DDCC meeting minutes of Cumilla district of the year 2021.

¹³ Data retrieved January 15, 2025, from, <https://oldweb.lged.gov.bd/ProjectHome.aspx?projectID=800>

meeting is diverted from 'development' issues to general discussions, such as if any department is facing problems operating their regular activities. As a result, development-related information is not shared among the members. The consequence is that the project suffers where multi-stakeholder action is necessary. That is why it is necessary to know the factors hindering DDCC members in inter-organizational coordination at the district level and diverting them from the main focus.

The second problem is the relationship between DDCC and the line ministry. DDCC is supposed to make recommendations and send reports to the ministry. But it hardly sends any recommendations. Though DDCC sends reports to the ministry, the reports are abstract. No concrete report on any project is sent. On the other hand, the ministry is supposed to collect information from the DDCC. But, the ministries directly collect information (sometimes even not) from their own district department. As the officers do not spontaneously share information among themselves at the district level, many problems arise. Duplication of the project or component is one of them. Because another officer at the district level does not know that this type of project is going to be undertaken by another ministry. An example of such a problem has already been given earlier, such as a project against thunder and lightning that was taken separately by both the Ministry of Agriculture and the Ministry of Disaster Management, creating duplication. If one of the ministries had communicated via DDCC, then there would have been no duplication. Because the district officers of both ministries are always present at the DDCC meetings. This is the vertical problem between the DDCC and the line ministry. There might be some coordination challenges between the DDCC and the line ministries.

1.3. Research Objectives

Any coordination gap within DDCC and between the line ministry and field administration can have profound adverse impacts on the implementation of development projects. As two problems have been identified, this research has two objectives. The objectives are to examine and describe the coordination challenges.

One objective is to find the factors affecting inter-organizational coordination at the district level from the horizontal level. Another objective is to seek the coordination challenges between DDCC and the line ministry.

1.4. Research Question

The study seeks to answer two research questions, as two separate problems have been identified. The research questions are:

- 1) What are the factors affecting inter-organizational development coordination at the district level in Bangladesh?
- 2) What are the coordination challenges between DDCC and the line ministry in the implementation of development projects?

1.5. Methodology

The philosophical stand of this study is interpretive, while the approach is inductive. To describe the coordination challenges, this study will follow qualitative research methods by conducting in-depth interviews, surveys, and Focus Group Discussions (FGD). By quantifying, it is not possible to find the underlying issues of this study because it needs in-depth analysis and deeper understanding. The experience and knowledge of the members of the DDCC need to be interpreted to discover the coordination challenges. Moreover, the author of this study wants to refrain from intervening and controlling the condition to limit the findings. Data will be collected from three districts. The districts are chosen purposively based on several criteria. The members of the DDCC and the representatives of the ministries are the participants of this study. After transcribing the data, a thematic analysis will be applied.

1.6. Significance of the study

DDCC is the designated platform at the root level of Bangladesh for the smooth implementation of development projects. It has been found that projects are delayed and costs escalated mostly due to the lack of inter-organizational coordination at the field level. Moreover, duplications and redundancies of projects could easily be avoided through the proper functioning of the DDCC. Hence,

systematic research on DDCC will be very crucial to the nation's development. Additionally, IMED consultants who monitor and evaluate the impact of the projects will be benefitted from this study. The top management of the ministries, especially the planning section of each ministry, can incorporate the ideas of this study into their upcoming projects. The Cabinet Division must consider the suggestions of this study to make the DDCC more functioning. Finally, researchers will have the opportunity to utilize the limitations of this study for further research.

1.7. Structure of the thesis

The study contains six chapters. Chapter one is the introductory chapter of the research, which covers the background, problem statement, objectives, research questions, methodology, significance of the study, and the thesis structure. Existing literature is reviewed in the second chapter, which covers the theoretical background of coordination in policy/project implementation, the meaning of coordination, coordination and other affiliated concepts, different dimensions of coordination, the importance of coordination in development project implementation, and theoretical approaches to achieving coordination. Chapter three (research background) presents the real picture of development project implementation processes and the actual condition of DDCC. It provides the development project's reflection on the national budget, the project cycle of Bangladesh, the local government context, the development project approval/implementation process, what happens in the implementation stage, the legal stand of DDCC in development project implementation, formation and scope of DDCC, effectiveness of DDCC, and elected political leaders' affinity with DDCC. Methodology, data analysis, and findings is the title of chapter four, which presents the research method, sampling, data collection method, the procedures and steps of data collection, data presentation, analysis of the data, and findings. Chapter five (discussion) describes the themes that emerged from the analysis of coded data. Chapter six, the last chapter, is the concluding chapter of the research. It highlights the findings consistent with the research problem, objectives, questions, and methodology. It also recommends short-term, mid-term, and long-term policies.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

This chapter delves into the importance of coordination in implementing development projects and reviews the existing literature. It describes other academic jargons related to coordination. Different dimensions and types of coordination are vividly delineated. Then, DDCC's difficulty in implementing development projects is studied using different theoretical approaches. After that, the factors affecting coordination in DDCC are highlighted. Finally, a conceptual framework has been developed based on the literature review.

2.2. Theoretical background of coordination in policy/project implementation

There is always an argument about whether development projects fail (or do not succeed) because of their own merit or because their success solely depends on implementation mechanisms (Hudson et al., 2019). From the top-down point of view, policy formulation is more important than policy implementation (Hill & Hupe, 2015). But, the top management lacks "full rationality," which may make the design faulty, causing failure in the implementation stages. The problem can be minimized in a position where superiors and subordinates are vertically integrated both in formal and informal ways (Christensen *et al.*, 2008). However, too much vertical coordination creates "siloization," which impedes front-line service delivery at a horizontal level. Building horizontal coordination across silos can be a remedy for siloization (Samaratunge et al., 2016). DDCC is a horizontal inter-organizational platform composed of different district heads in Bangladesh. It can communicate vertically to the superior authorities, too. It has the ability to reduce the silo syndrome of different departments through horizontal coordination and provides background information to reduce the 'bounded rationality' of top management through vertical coordination. Hence, effective coordination is highly desirable for DDCC. If there is any gap, it affects the policy implementation.

2.3. Meaning of coordination

Although coordination has a commonsense meaning, in the context of 'government,' it is more than that. It has some other facets and complexities that

must be considered. For instance, coordination can be both a process and an outcome of that process (Bouckaert et al., 2010). Process is the way or mechanism through which decisions are brought together. On the other hand, the outcome may be weak, medium, or strong (Lie, 2011). Moreover, some terms such as cooperation, coherence, collaboration, and integration are used synonymously with coordination. Because of these complex issues, it sometimes becomes challenging to understand coordination. That is why the effort for effective coordination has been compared to the search for the "holy grail" (Chisholm, 1989).

The Oxford English Dictionary defines coordination as the action of coordinating: harmonious combination of agents and functions towards the production of a result. We sometimes become ambiguous about it. The reason is not due to the lack of definition but rather to the fact that there are too many different definitions. This study does not consider all the definitions. The study selects three definitions from the policy and administration arena, which is the focus of the study. One of the definitions was given by Charles Lindblom (1965), who viewed coordination analytically. According to him, "Coordination is mutual adjustment between actors or a more deliberate interaction produces positive outcomes to the participants and avoids negative consequences" (Lindblom, 1965, p. 23).

The most important part of this definition is the 'mutual adjustment' as a coordination strategy. Actors or organizations make decisions based on mutual adjustment. On the other hand, Hall and his associates (1977) see coordination as a relationship between or among organizations. According to them, "Coordination is the extent to which organizations attempt to ensure that their activities take into account those of other organizations" (Hall et al., 1977, p. 459).

Coordination is also related to action. "Coordination happens insofar as different actions of various actors become linked to constitute chains of actions" (Kaufmann et al., 1986, p. 790). This definition highlights the aspect of interdependence in coordination. Malone and Crowston (1994) also assert the importance of dependencies between the activities of actors. They state that if there is no interdependence, then there is no coordination. In today's policy environment,

government agencies' capability has been strengthened by 'interconnectedness,' which means the interdependence of the actors by impacting others' actions. As a result, multilateral action becomes indispensable for policy development and implementation (Alexander, 1995).

2.4. Coordination and other affiliated concepts

Before discussing different dimensions of coordination, it is imperative to know some terms that are closely associated with coordination. Cooperation, collaboration, and integration are noteworthy among them. There are different definitions of cooperation, coordination, and collaboration, yet they are frequently used interchangeably as they consist of similar elements (Wankmüller & Reiner, 2019).

Researchers Castañer and Oliveira (2020) try to find some distinctive features of these terms in their systematic literature review. They found that researchers (Salvato et al., 2017) also analyzed these terms from an etymological point of view. The word 'coordination' comes from the Latin word *cum ordinare*, which means to put in order, to organize and together with others. 'Cooperation' originates from the Latin word '*cum operare*', meaning to operate along with others. Finally, collaboration deviates from the Latin word *cum laborare*, which means to work with others. From the etymological perspective, there is no difference between cooperation and collaboration. Analysis shows that Latin etymology does not provide the distinct meaning of these terms (Castañer & Oliveira, 2020). So, it is important to know the distinctions between the terms from the organization's behavioral pattern, which is the focus of the study.

2.4.1. Cooperation and coordination

In organizational literature, one of the earliest distinctions has been made between cooperation and coordination by several researchers (Schermerhorn, 1975; Rogers and Whetten, 1985; Bouckaert et al., 2010). According to them, cooperation is temporary and informal. It creates relationships among organizations for mutual benefit. On the other hand, coordination is more formal, has formal structures, and is permanent in nature. DDCC has a formal structure based on government circulars.

It sits formally once a month. In Bangladesh, non-governmental organizations (NGOs) often seek the cooperation of local administrations. For example, BRAC, a prominent NGO in Bangladesh, sought the cooperation of the Upazila administration of Meghna Upazila of Cumilla during COVID-19 in distributing humanitarian assistance to the distressed¹⁴. This is not their regular activity, but rather a special case. They only provide human assistance in times of disaster. Here, the NGO works as an auxiliary force for the government. So, the government agency welcomes their cooperation since the goal is common.

2.4.2. Collaboration and cooperation

Researchers Castañer and Oliveira (2020) also distinguish between cooperation and collaboration. According to them, cooperation is the preliminary stage of interaction, whereas collaboration is the deepest level of integration. In the case of cooperation, organizations work for a common goal but remain independent. In terms of collaboration, organizations aim for a joint or shared goal and remain mutually interdependent. During COVID-19, both the Ministry of Health and the Ministry of Education worked collaboratively to vaccinate all high school students in Bangladesh.

2.4.3. Collaboration and coordination

On the other hand, Bouckaert et al. (2010) describes collaboration as a subset of coordination, in which cooperation and ‘working together’ is voluntary and based on normative agreements. They also consider coordination to be a process of interactions among organizations.

The argument can be concluded by Ergun et al. (2014) who remark that coordination is a prerequisite for both collaboration and cooperation. Collaboration only occurs when an organization's tasks and operations are already connected.

¹⁴ The author has observed this phenomenon of NGO while working in field administration.

2.4.4. Integration and coordination

In organization theory, coordination is highly related to integration. Integration is the response against differentiation, which is the result of specialization. In organizations, it is achieved through coordination mechanisms. However, the main difference between integration and coordination is that integration focuses on unification and merging, while coordination coordinates by working together (Bouckaert et al., 2010).

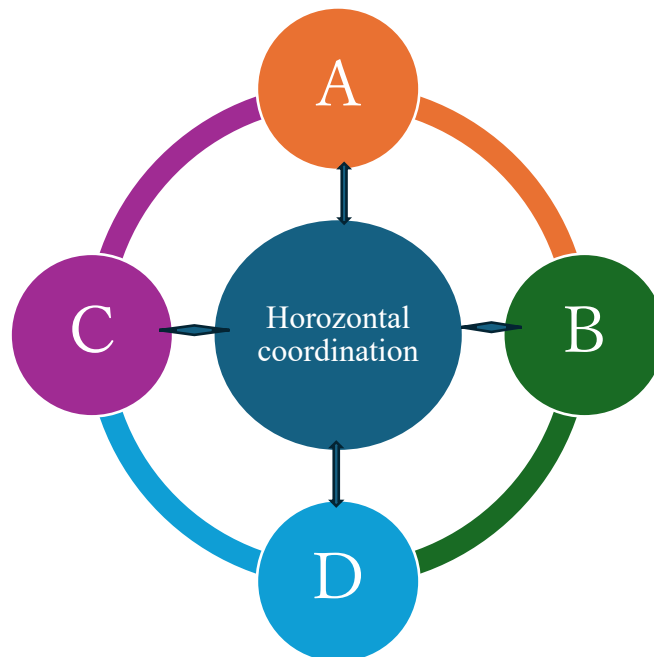
2.5. Different dimensions of Coordination

Coordination has different dimensions. It may be vertical, horizontal, inter, or intra. Moreover, there is positive coordination and negative coordination, too.

2.5.1. Horizontal coordination

Coordination at the same hierarchical level or same tiers is considered as horizontal coordination. It can be within or among organizations (Christensen *et al.*, 2007). In the figure below, A, B, C, and D are the four separate organizations at the same hierarchical level that coordinate horizontally.

Figure 1: Horizontal coordination



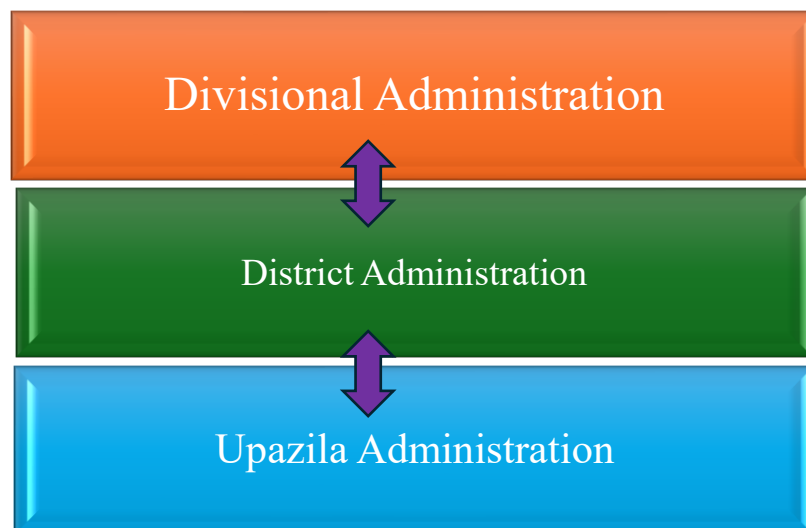
Source: Constructed by the author.

DDCC is an example of horizontal coordination where the members meet monthly. In horizontal coordination, since all actors belong to the same hierarchical level, no one can impose any decision or order as they have no power and authority over others (Bouckaert et al., 2010). Here, organizations are independent from each other (Ahsan, 2018). Horizontal coordination is crucial for development at the local level. To improve horizontal coordination at the division level, a program (PLSP- Public Sector Linkages Programme) has been taken in Sri Lanka with the support of Austrian Aid (Samaratunge et al., 2017).

2.5.2. Vertical Coordination

Coordination at different hierarchical levels is called vertical coordination. Generally, it is only possible within an organization, and top-down interactions are done through vertical coordination (Bouckaert et al., 2010). In Bangladesh, Upazila Administration communicates to the Divisional Administration through District Administration which is an example of vertical coordination. Divisional Administration is the highest rank of field administration while Upazila Administration is the lowest rank of field administration (Figure 2).

Figure 2: Vertical Coordination



Source: Pandey & Ahsan, 2013, Compiled by the author.

However, Christensen et al. (2020) show that vertical coordination is possible among organizations by showing an example of ministerial coordination with a regulatory agency (Table 1). But a regulatory agency is, to some extent, subordinate to that ministry. In Bangladesh, though DDCC coordinates horizontally within a district, it can communicate vertically as a body through the circulations of minutes and written documents. Direct supervision is also a kind of vertical coordination (Mintzberg, 1979). In this case, it generally manages the activities of an organization (Ahsan, 2018). In the top-down implementation of projects, the central government coordinates through this mechanism.

Table 1: Different dimensions of coordination

	Vertical coordination	Horizontal coordination
Intra-organizational coordination	Between political and administrative executives, Or between top civil servants and lower-level officials within a ministry	Between units within an organization
Inter-organizational coordination	Between ministries and subordinate agencies	Between ministries or agencies or organizations

Source: Adapted from the work of Christensen et al. (2017)

2.5.3. Inter-organizational coordination

When the coordination takes place among several organizations, it is called inter-organizational coordination. It can only be done horizontally (Ahsan, 2018), though Christensen et al. (2020) have a different view (Table 1). DDCC is an example of inter-organizational coordination at the horizontal level when they make any decision through discussion in a meeting.

2.5.4. Intra-organizational coordination

If the coordination is done within an organization, it is called intra-organizational coordination. It can be done both horizontally and vertically. Some units of the same hierarchy within an organization can coordinate horizontally (Lie, 2010). Again, some units of the same organization can coordinate vertically from different hierarchies. Interestingly, though DDCC is an inter-organizational platform, if the decision or suggestion taken in the DDCC meeting is forwarded upward, it is an example of vertical intra-organizational coordination. In this case, DDCC becomes a single unit, subordinate to that ministry.

2.5.5. Formal coordination

Information sharing is one of the three activities to manage inter-organization interactions (Honadle & Cooper, 1989). It can be done in two ways: formal and informal (Hall et al., 1977; Martinez & Jarillo, 1989; Ahsan, 2018). The formal type is mandatory because it is ensured through written documents such as rules, regulations, written documents, and circulars. The behavior of the actors is formalized here (Panday & Ahsan, 2013). In Bangladesh, the Cabinet Division formally coordinates with district administration through official letters, issuing circulars, and issuing instructions. In formal coordination, no confusion exists because everybody knows their tasks. That is why it is considered the most effective and efficient way of coordination (Ivanova & Sydnes, 2010).

2.5.6. Informal coordination

Though formal coordination has many advantages, it has some drawbacks, too. In case of emergency and uncertainty, it cannot respond. For example, during a time of disaster, it is not possible to formally coordinate. Formal coordination is more time-consuming than informal coordination. In contrast to written instructions for formal procedures, informal responses are spontaneous. It can be used when needed. It is also self-motivated (Ahsan, 2018). Informal coordination emerges (if the actors are committed to each other) due to the failure and ineffectiveness of formal coordination (Chisholm, 1989). It can facilitate formal coordination by reducing malfunctions such as confusion or lack of information. In DDCC, if a

member remains absent or does not grasp any discussion in the meeting, s/he has the opportunity to know it later through informal channels from other members. Many scholars have agreed that the simultaneous use of both is the best policy to ensure better coordination (Ahsan, 2018).

2.5.7. Positive and Negative Coordination

When organizations or actors agree that they will not harm or impede the activities, operations, and programs of others, it is called negative coordination. The main objective is to avoid conflict. According to Fritz Scharpf (1994), it is the minimum level of coordination to attain governance. In Bangladesh, each ministry has the authority to manage policy and control administration in its own area. On the other hand, positive coordination is beyond avoiding conflicts. It benefits all involved in finding a solution by cooperating (Peters, 2018). It is not easy to achieve. All the actors need to respond according to the needs of the situation. Sometimes, actors must come out of their legal demarcation to achieve the goal. In a few cases, they have to sacrifice their own departmental goal to achieve the greater goal. However, positive coordination is more desirable in policy implementations rather than mere negative coordination (Bouckaert et al., 2010).

2.6. Importance of coordination in development project implementation

Why is coordination necessary in policy/project implementation? Generally, project/policy implementation requires the involvement of multiple stakeholders. Multiple actions and resources are necessary for implementation and those are beyond the capacity of the sole implementing agency (Tuler et al., 2007). Why should we give so much importance to coordination? Peters (2018) answers it. He finds out several consequences if there is a lack of coordination. The absence of it may create confusion, contradiction, conflict, overlapping, displacement, duplication, and wastage of resources such as time and energy (Figure 3) (Peters, 2018; Ahsan, 2018).

Figure 3: Consequences of no coordination



Source: Peters (2016) and Ahsan (2018), Compiled by the author.

2.6.1. Duplication

It emerges due to the lack of coordination. Different organizations or their programs may do the same thing if not coordinated (Peters, 2018). In Bangladesh, project duplication is a common phenomenon. Different ministries often take on the same project. To reduce duplication, a software application has been developed by IMED. But sometimes, the title of the project is also misleading. Though the project names differ, the scopes and components are found the same.

2.6.2. Contradiction

Organizations also take programs that contradict each other. For example, in the USA, the Department of Health and Human Services tries to reduce or eliminate smoking, whereas the Department of Agriculture subsidizes tobacco growers (Bouckaert et al., 2010). In Bangladesh, the coal-based power plant policy has contradicting issues with the Department of Environment.

2.6.3. Displacement

When an organization (without consulting with others) makes decisions or programs that create discomfort for others, it is considered displacement. For instance, it was not necessary to carry a passport for Americans to travel to Mexico and Canada before the 9/11 attack on the USA. After the attack, the Homeland Security Department made it mandatory without informing or consulting with the State Department, which issued passports. Then, the State Department had to face numerous demands for passports at a time (Peters, 2018).

2.6.4. Overlapping

It is another consequence of the coordination gap. It is the situation when several organizations or project entities share the same resources, such as land, geographical location, and manpower (Peters, 2018). There is only one vibrating road roller in Meghna Upazila of Cumilla in Bangladesh. All contractors try to utilize the roller before any other contractor grabs it. So, contractors always compete to get the roller, creating overlapping. Another example is the stakeholder overlap in Bangladesh. Several projects of the Ministry of Women Affairs, the Ministry of Youth, the Ministry of Social Welfare, and the Rural Development and Cooperatives Department have the same beneficiary target, which creates hegemony¹⁵.

2.6.5. Confusion

When actors are not aware of who will do what, when, how, and where, it creates confusion. A poem by Osgood (1930) is relevant here. Four people (EVERYBODY, SOMEBODY, ANYBODY, and NOBODY) were to accomplish a job. The poem summarizes that there was an important job to be done, and EVERYBODY was sure that SOMEBODY would do it. ANYBODY could have done it, but NOBODY did it. SOMEBODY got angry about that because it was EVERYBODY's job. EVERYBODY thought ANYBODY could do it, but NOBODY realized that EVERYBODY could not do it. It ended up that

¹⁵ The author had observed these scenarios during his service in field administration.

EVERYBODY blamed SOMEBODY when NOBODY did what ANYBODY could have.

2.6.6. Time extension and cost escalation

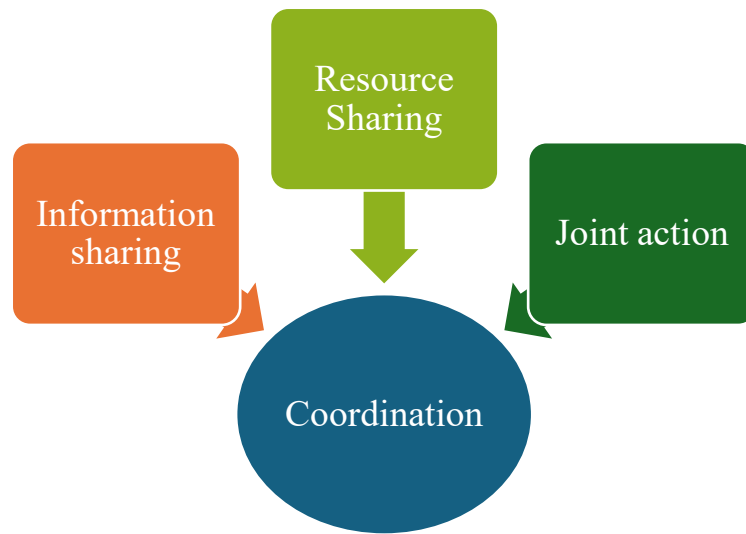
This is the most common phenomenon in Bangladesh. Due to the lack of coordination, the project is not completed within the estimated time. As a consequence, time extension becomes inevitable. Due to inflation, the price of materials increases at that time. So, the revision of the projects is mandatory (Pandey, 2007). Furthermore, if the stakeholder analysis and feasibility study are done improperly, the project's design needs to be changed. For design change, time extension and cost increase become indispensable (Ahmed, 2010).

2.7. Theoretical approaches to achieving coordination

Peters (2018) identifies "coordination as a fundamental problem for public administration and policy." Because it has already been demonstrated that inter-organizational coordination is inevitable in implementing development projects/policies (Ivanova & Sydnes, 2010). Researchers are still searching for ways to coordinate better. Many attempts have already been made to make public organizations work more effectively, but none have been proven to be a panacea. Instead, it depends on the context (Peters, 2018).

According to Honadle and Cooper (1989), coordination can be achieved through three activities of the actors of the organizations. These activities include information sharing, resource sharing, and joint action (Figure 4).

Figure 4: Activities to achieve coordination.



Source: Honadle & Cooper (1989), Compiled by the author.

But what are the processes or mechanisms to do such types of activities that remain a question? There are mainly three dominant theoretical approaches to coordination mechanisms. These are hierarchy, market, and network mechanisms (Bouckaert et al., 2010). However, according to Hedström and Swedberg (1998), it is also important to know more about some basic processes and resources to understand the social and political dynamics. These are bargaining, co-optation, and coercion. Peters (2003) identifies several processes: power, authority, bargaining, mutual co-optation, and norms. Kruck and Zangl (2020) adopt four strategies that can be used to adjust international institutions to the global power shift. These are power bargaining, rhetorical coercion, strategic co-optation, and principled persuasion. According to them, there are two parties: challengers and defenders. Challengers challenge or pressure the institutional status quo, whereas the defenders defend. They distinguish between arguing and bargaining and distributive and integrative negotiation strategies. Through the arguing strategy, negotiating parties try to convince others legitimately or show the lack of legitimacy of others. On the other hand, in bargaining strategy, parties rely on threats or promises. Distributive and integrative strategies are defined by 'value-claiming' behavior and 'value-creating' behavior, respectively. Value claiming means maximizing one's own

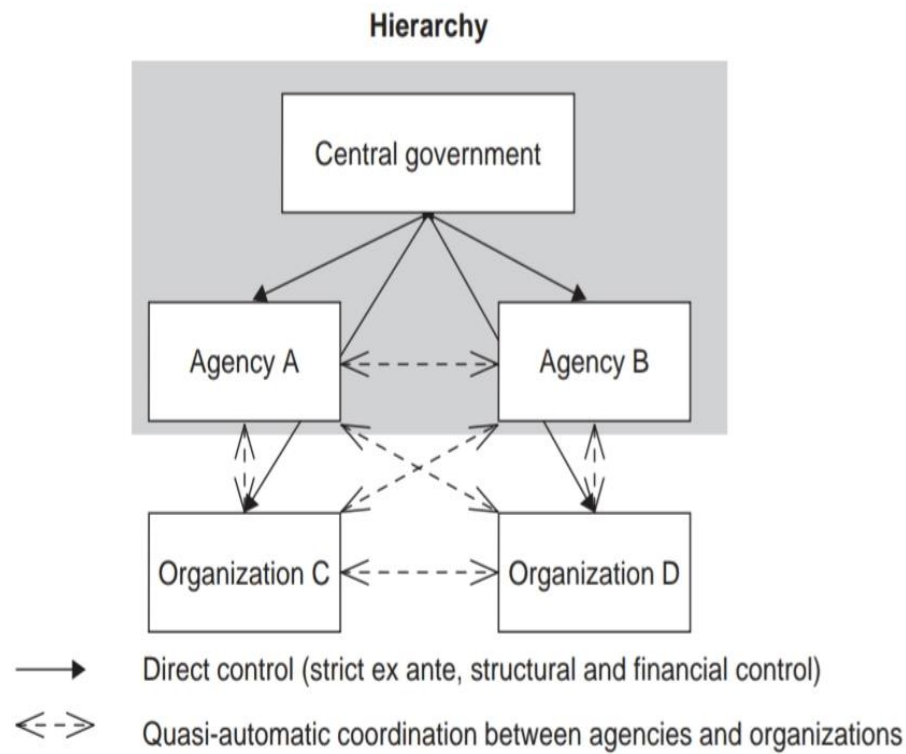
interest, while value creating means maximizing common interest or shared profit. However, these strategies can also be used within domestic organizations' behavioral contexts. Because all the organizations' power and authority change over the context.

This study will not focus on all the theories. Rather, it will follow the three dominant fundamental theories. Because DDCC is closely related to them. The study will first focus on hierarchy.

2.7.1. Hierarchy

In public sector organizations, hierarchy is the most popular mechanism for managing coordination. It has its roots in Max Weber's (1947) theory of bureaucracy. The theory emphasizes the division of labor, rules, procedures, and authority as coordination instruments. Authority and power are the two basic resources and processes for the hierarchical coordination mechanism (Bouckaert et al., 2010). The central government generally uses this mechanism to ensure control and manage administration. Through this mechanism, the implementation of policy/goals taken by the central government is being done (Lie, 2010). In this mechanism, the central government directly controls agencies and organizations without any resistance by using power and authority. But the relations and coordination among agencies and organizations are weak (Figure 5).

Figure 5: Hierarchical Mechanism

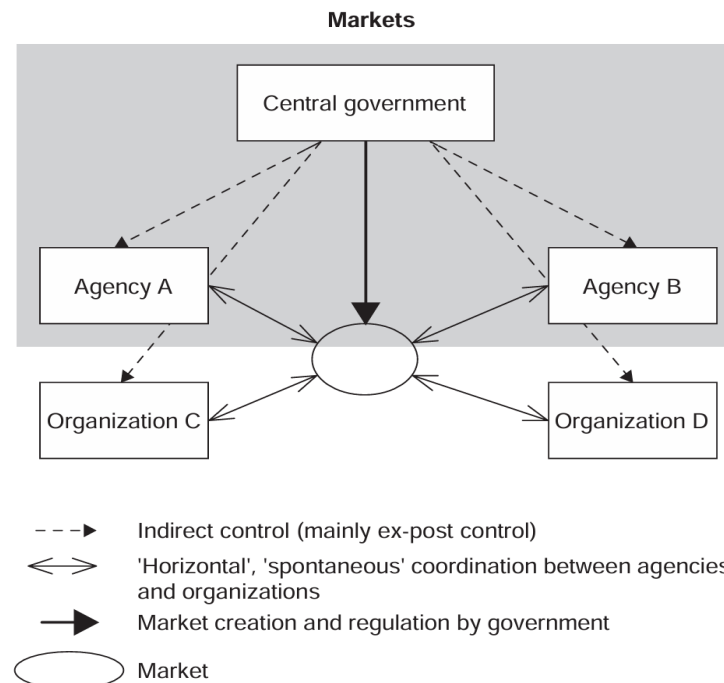


Source: Adapted from the work of Bouckaert et al., (2010)

2.7.2. Market

In this mechanism, actors exchange goods and services through a price mechanism (Pollitt & Bouckaert, 2004). Competition and bargaining are the main instruments to achieve market. Actors use a market where buyers and sellers maintain the equilibrium of demand and supply through a price mechanism. The central government does not have direct control over the actors. Only the market is created and regulated by the central government. Strong coordination is found between agencies and organizations (Figure 6).

Figure 6: Market Mechanism

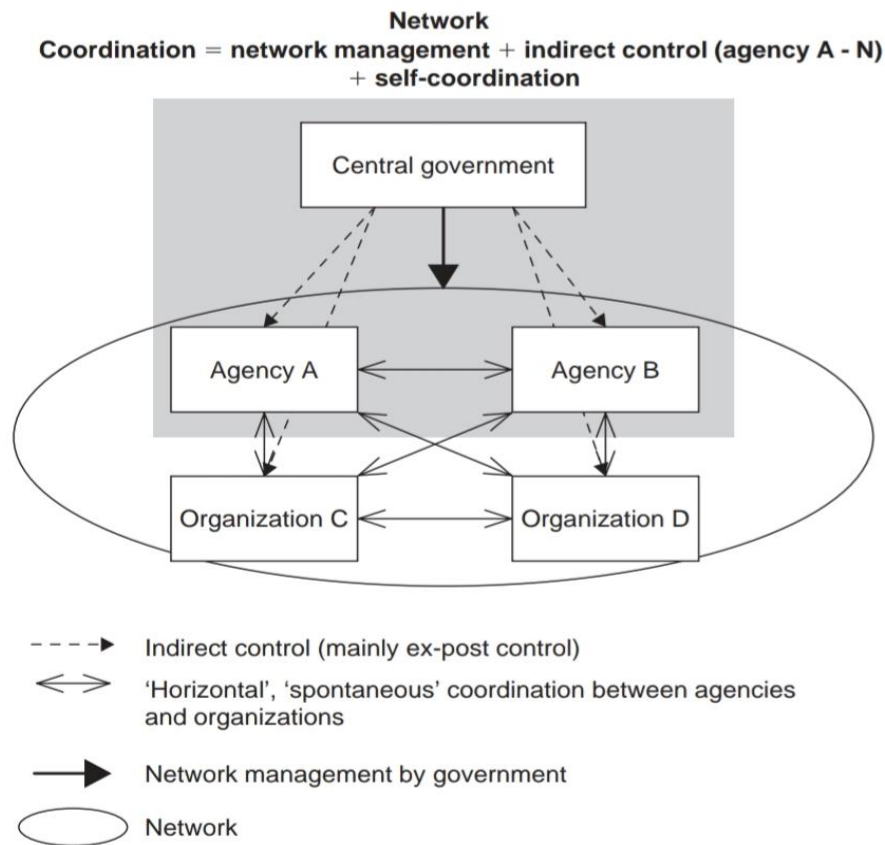


Source: Adapted from the work of Bouckaert et al., (2010)

2.7.3. Network

There is no hierarchical instrumental use in the network mechanism; rather, the participants build horizontal inter-organizational coordination through negotiations, co-optation, and bargaining (Peters, 2018). They develop mutual trust among themselves so that they can believe in each other's actions and can cooperate. It helps to build up bottom-up coordination, too. In this mechanism, the central government has indirect control over participants, whereas they are strongly connected. The central government only manages the network (Figure 7).

Figure 7: Network Mechanism



Source: Adapted from the work of Bouckaert et al., (2010)

The prominent British Political scientist Rhodes (1997) explores how the conventional form of hierarchical government has changed with the passage of time. He emphasizes policy networks. In modern governance, the network is made of multiple actors (public, private, and voluntary) who are interdependent. This type of network is not accountable to the state. He refers to it as the 'hollowing out' of the state, which means that the power and authority are no longer in the mere hands of the state.

In his 'policy network,' the role of civil society is very important. On the other hand, in Bangladesh, civil society has little impact on formulating and implementing public projects. For example, organizations like BELA (Bangladesh Environmental Lawyers Association), BAPA (Bangladesh Poribesh Anodolon),

Young Power in Social Action (YPSA), and (NCCB) Network on Climate Change in Bangladesh criticize the government if a project taken having an adverse impact on climate. The government overlooks those criticisms most of the time. At the district level, representatives of civil society are in the DDCC. NGOs (Non-governmental organizations) and CSOs (civil society organizations) are yet to function in terms of public projects in Bangladesh, as described by Rhodes in his works.

However, from now on, the study will focus on hierarchy and network mechanisms. Because the formation and activity of DDCC have similarities with them. On the other hand, there are no buyers and sellers in DDCC. Because DDCC members do not have that much freedom and independence. This issue will be detailed in the next chapter. So, no further discussion will be on the market. At this point, it is also necessary to show the distinction between hierarchy and network mechanism (Table 2).

Table 2: Characteristics of Hierarchy and Network

	Hierarchy	Network
Base of Interaction	Coercion, authority, and dominance	Mutual understanding, cooperation, solidarity
Purpose	Deliberately designed and controlled goals	Spontaneous participation and spontaneously created results
Guidance, control, and evaluation	Supervision, inspection, and intervention	Shared values, consensus, loyalty
Role of Government	Central dominance, top-down control, rule-maker	Network creator, network participant
Resources Needed	Authority and power	Mutual co-optation, trust
Theoretical Basis	Weberian bureaucracy	Network theory

Source: Thompson et al., (1991); Bouckaert et al., (2010); Peters, (2018), Compiled by the author.

There is a network among the members of DDCC, and they meet at least once every month. The central government circulates circulars through which the formation and structure are formed. This means that the central government manages the network. Informal relationships are also there. The actors are independent but mutually cooperative. In every sense, the mechanism of DDCC looks like the mechanism of the network. Then, why is DDCC not successful in implementing development projects? Because the formation of DDCC is network-based, but its members behave hierarchically. A strong hierarchical relationship exists between each department and its respective line ministry. They share and do what they are instructed vertically. Every ministry command and control and their approaches are top-down. Because of this intense vertical relationship associated with some other factors, the network of DDCC becomes weak. This is one of the two arguments of the study.

On the other hand, DDCC as an organization also fails to communicate vertically. In network mechanisms, bottom-up coordination is possible. But the actual relationship between DDCC and the central government is hierarchical. All the development projects are taken centrally. There has been no discussion with DDCC during the pre-project stage. Why does DDCC fail to communicate vertically? There might be some challenges. This is another point of this study.

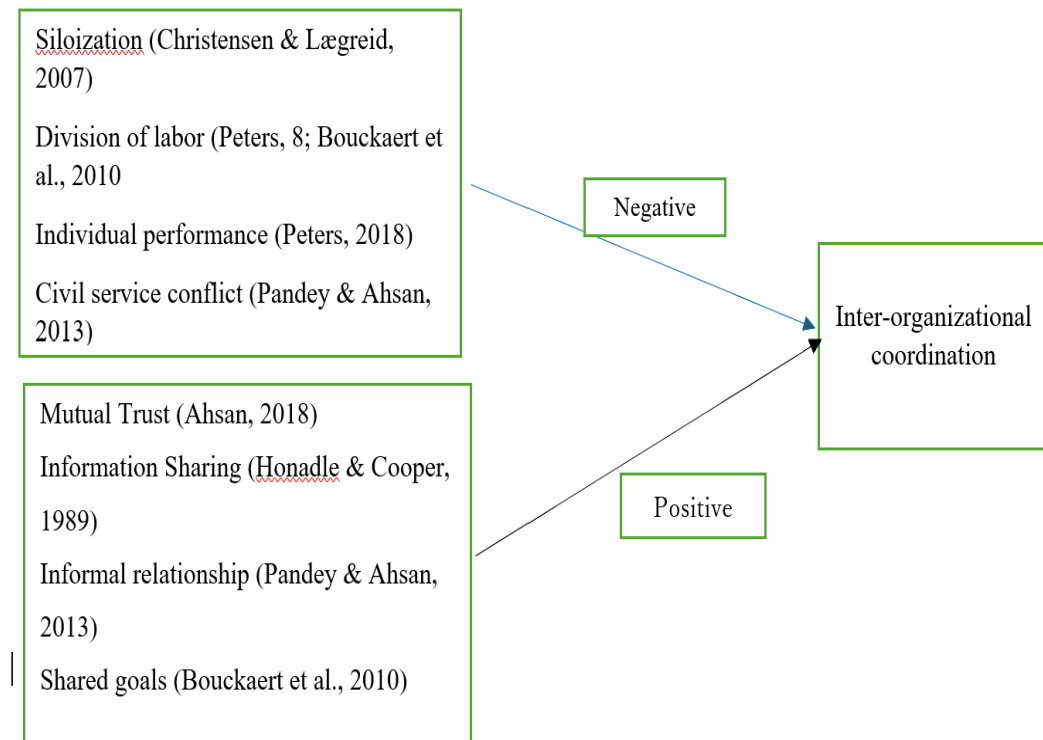
Researchers have tried to find out the reasons why inter-organization coordination fails. Why can it not function properly? They have found several factors that are affecting inter-organization coordination. These factors are mutual trust (Ahsan, 2018), information sharing (Honadle & Cooper, 1989), informal relationship (Pandey & Ahsan, 2013), shared goals (Bouckaert et al., 2010), siloization (Christensen & Lægreid, 2007), division of labor (Peters 2018; Bouckaert et al., 2010), individual performance (Peters, 2018), and civil service conflict (Pandey & Ahsan, 2013). It has been found that some factors positively

influence while some factors negatively. Hence, a framework has been drawn (Figure, 8).

2.8. Conceptual Framework

Figure 8: Conceptual Framework

Figure 8: Conceptual Framework



Source: Constructed by author

2.8.1. Negative factors

2.8.1.1. Siloization

In organizational Silo Syndrome, organizations behave like ‘silos.’ They cannot see others. They can only see themselves. They work based on vertical command and control. It impedes inter-organizational coordination (Christensen & Lægheid, 2007; Bouckaert et al., 2010). In DDCC, it is an intense problem. Almost all the departments of DDCC give priority to their own hierarchical instructions.

2.8.1.2. Individual performance

In siloed organizations, high officials evaluate individual agency performance rather than the performance of shared programs or cross-cutting agendas (Bouckaert et al., 2010). Such type of individual performance has a negative influence on coordination. Organizations may be reluctant to achieve goals if the target is set for organizations (Peters, 2018). The government official members of DDCC are evaluated by the ACR (Annual Confidential Report) and the APA (Annual Performance Agreement). Their hierarchical boss does both of these evaluations.

2.8.1.3. Division of Labor

It can simultaneously promote and prevent coordination. In this study, the division of labor has been considered a negative influence. It is an essential instrument in hierarchical mechanisms. But DDCC is close to the network mechanism. According to Peters (1998), its negative influences are seen in two cases. Due to the lack of division of labor, several organizations may want to perform the same task, or maybe no organization is interested in doing a particular task. Another problem is the organization's adherence to the division of labor. Nobody wants to do anything out of the box (Peters, 1998; Bouckaert et al., 2010). In DDCC, departmental heads attend the meeting monthly but usually refrain from active participation. According to some, the division of labor is not clear, and according to some, they cannot go beyond the division of labor.

2.8.1.4. Civil service conflict

It is another crucial factor that creates hindrances in inter-organizational coordination. In Bangladesh, there is conflict in the civil service. Professional jealousy in the civil service affects coordination, especially in the field (Pandey & Ahsan, 2013).

2.8.2. Positive factors

2.8.2.1. Shared goals

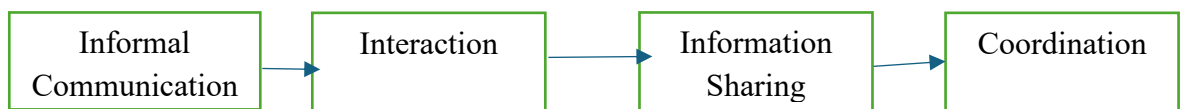
Shared goals are significant for coordination. Actors act jointly when the goal is shared. In that case, everybody owns the work. In a shared goal, there is a

common objective for all the participants to align themselves to achieve it. All the participants behave synchronously rather than conflicting with each other. Every actor has an incentive for a shared goal (Bouckaert et al., 2010).

2.8.2.2. Information sharing and informal relationships

There is no coordination without information sharing. According to Honadle and Cooper (1989), information sharing is one of the three factors influencing coordination. In DDCC, different departments exchange information within a district. Information can be shared in both formal and informal ways. Formally, the information is shared through official letters, demi-official letters, office memorandum, circulars, rules, and regulations. (Panday & Ahsan, 2013). In DDCC, oral discussions in meetings are also considered formal. Because based on the talks, the minute of the meeting is prepared. However, informal information sharing is crucial. There are no rules and regulations for it. Informal communication or relationships is the prior step of informal information sharing. It creates interactions that help to share information (Figure 9). Every district has an officers' club to build informal relationships among officers in Bangladesh.

Figure 9: Relationship between informal communication and coordination



Source: Ahsan and Pandey, 2013, Compiled by the author.

2.8.2.3. Mutual Trust

It is one of the basic foundations of coordination. Other factors may not work if there is a lack of trust among actors. For inter-organizational coordination, it is mandatory. The more the actors trust each other, the more they will share information (Ahsan, 2018).

The strategy might be to reduce the negative factors and increase the positive factors for better coordination. However, there is no significant study on DDCC in Bangladesh on how to do that.

CHAPTER THREE: RESEARCH BACKGROUND

3.1. Introduction

Bangladesh has been gradually developing since its birth in 1971 but has not yet overcome the underdevelopment syndrome. The government of Bangladesh is trying to overcome this syndrome by increasing development budget allocation every year. At the end of each year, it has been found that the allocation is not correctly used, adversely impacting the country's development growth (Ahmed, 2010). This chapter delineates the development project's reflection on the national budget, the project cycle of Bangladesh, the local government context, the development project approval/implementation process, what happens in the implementation stage, the legal stand of DDCC in development project implementation, formation and scope of DDCC, effectiveness of DDCC, and elected political leaders' affinity with DDCC.

3.2. Development Project's reflection on the national budget

According to the fiscal year of 2023-2024, the national budget of Bangladesh¹⁶ is divided into two segments: revenue and expenditure. The expenditure is two types: operating expenditure and development expenditure. The total expenditure budget is 761785 crore taka. Out of that, 475281 crore taka is the operating expenditure, 277582 crore taka is for development expenditure, and the others are 8922 crore taka. The development expenditure is shared in the scheme, ADP (Annual Development Programme)¹⁷, the non-ADP special project, and a non-ADP FFW (Food for Work) (Table 3). More than 94% of development expenditure

¹⁶ According to Article 87 of the constitution of Bangladesh, the name of the budget is the Annual Financial Statement. It is laid before the parliament for the next financial year. In Bangladesh, the financial year starts on July 1 and ends on June 30.

https://mof.gov.bd/sites/default/files/files/mof.portal.gov.bd/budget_mof/01ea4c84_5cd9_47be_a75d_29ec0a3fcc24/00.pdf.

¹⁷ The Programming Division of the Planning Commission prepares ADP. It arranges an inter-ministerial programming committee meeting to include new projects in ADP. The finance division arranges a tri-party meeting for the allocation against each project. ADP is finally approved by the NEC (National Economic Council) (Rahman et al., 2022).

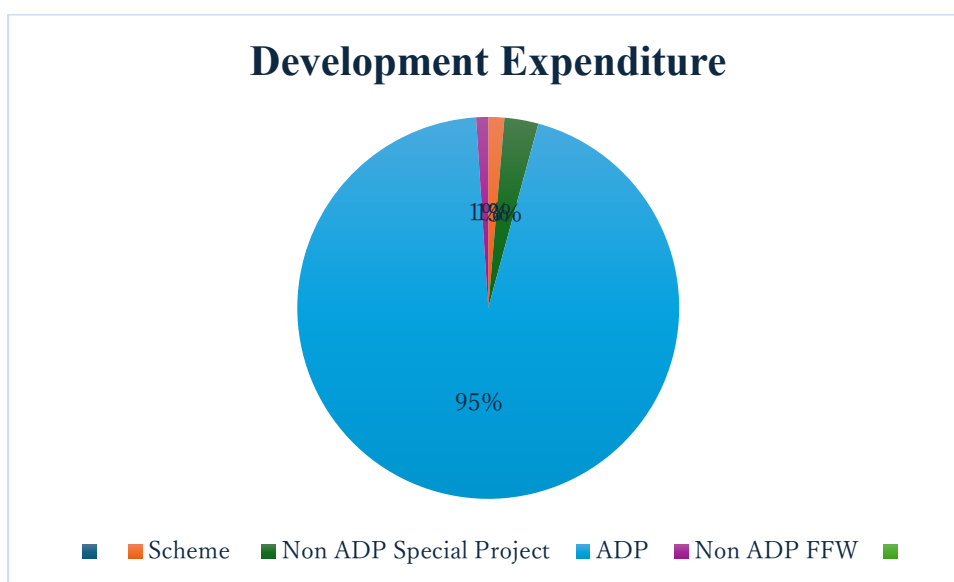
in Bangladesh is spent through ADP (Amir, 2017) (Figure 10). It consists of a project list and yearly allocation against each project. New and ongoing projects are listed with yearly budgets in ADP (Ahmed, 2010; Rahman et al., 2022). This means that development expenditure is almost always spent on development projects.

Table 3: Distribution of development expenditure in the financial year 2023-2024

Scheme	3768
Non-ADP Special Project	7986
ADP	263000
Non-ADP FFW	2828
Total Expenditure	277582

Source: Budget at a glance (2023-2024), Finance Division, Ministry of Finance, Bangladesh, compiled by the author.

Figure 10: Percentage of different components of Development Expenditure



Source: Budget at a glance (2023-2024), Finance Division, Ministry of Finance, Bangladesh, compiled by the author.

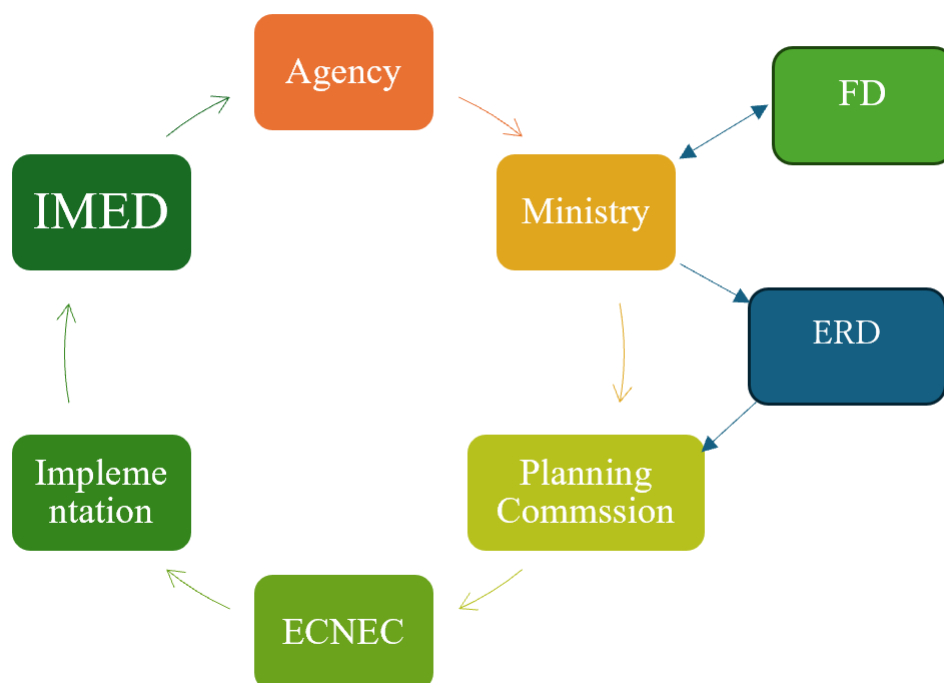
The above data also shows that ADP shares the majority of development expenditure. Bangladesh's economic growth, physical and social infrastructure development, and employment generation highly depend on successfully implementing ADP. Poor ADP implementation indicates the failure of development projects in that year. Because ministries and agencies fail to spend the allocated budget on each year's project. In Bangladesh, it has become a tradition to revise ADP every year due to this kind of slow implementation. Several stakeholders are involved in the implementation stage (Ahmed, 2010; Amir, 2017). DDCC is one of the influential stakeholders.

3.3. Project Cycle of Bangladesh

In Bangladesh, all kinds of development projects, including TAPP (Technical Assistance Project Proposal), are formulated by following the circular issued by the Planning Division, Ministry of Planning. The latest one was effective from June 2022, bearing memorandum number 20.00.0000.404.014.61.2020(Part-1)/133. Generally, the agency or the ministry can initiate a project. The Finance Division (FD) and the Economic Relations Division (ERD) of the Ministry of Finance guarantee the domestic and foreign finances, respectively. The Planning Commission evaluates and the ECNEC (Executive Committee of the National Economic Council)¹⁸ approves the project. In the implementation stage, IMED monitors and inspects the projects (Figure 11). After the implementation, IMED also makes an impact evaluation of the completed projects (Ahmed, 2010; Amir, 2017; Rahman et al., 2022).

¹⁸ ECNEC is formed by the government's gazette notification. The Cabinet Division issues the notification. The latest one was formed on August 20, 2024.
https://cabinet.gov.bd/sites/default/files/files/cabinet.portal.gov.bd/notices/12ac7b00_d4f9_4a78_a768_a6bc3a08a300/2801-%E0%A6%95%E0%A6%AE%E0%A6%BF%E0%A6%9F%E0%A6%BF%20%E0%A6%97%E0%A6%A0%E0%A6%A8.pdf

Figure 11: Project Cycle of Bangladesh



Source: Guidelines for Development Project Formulation, Processing, Approval and Revision in the Public Sector, 2022, Planning Division, Ministry of Planning, Compiled by the Author.

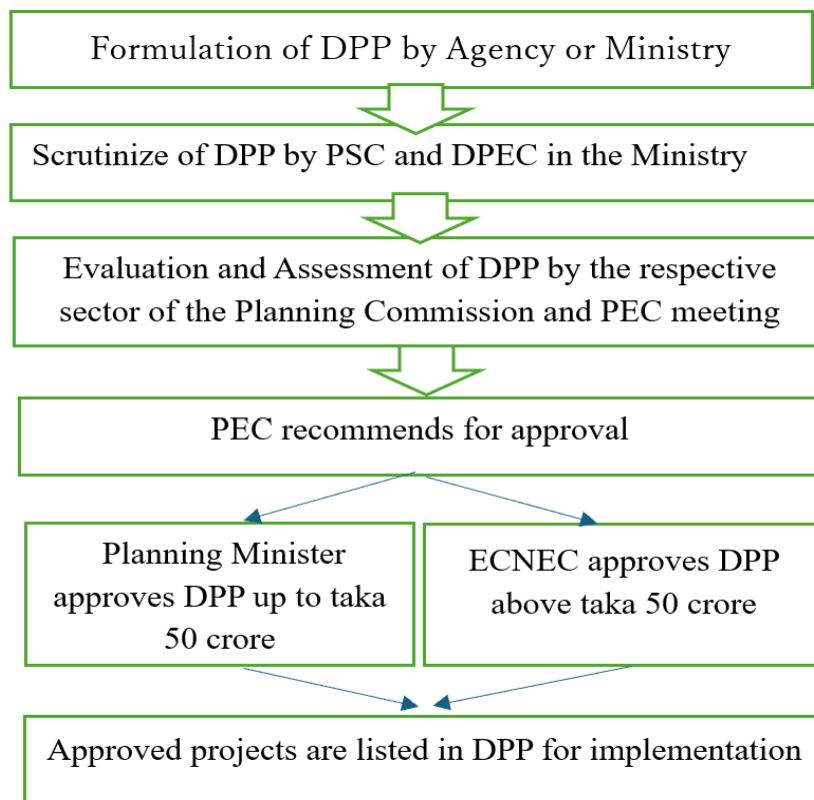
If an agency under a ministry takes on a project, then the ministry is called the sponsoring ministry, whereas the agency is known as the implementing agency. The agency prepares and sends the DPP¹⁹ (Development Project Proposal) to the ministry. In the ministry, a committee named PSC (Project Scrutiny Committee) examines the proposal and checks whether it complies with the Planning Division circular. DPEC (Departmental Project Evaluation Committee) is another committee in the ministry that checks other relevant issues. If the committees are satisfied, then

¹⁹ This is a designated proforma for all. If an agency or ministry wants to take on a project, they must fill out this proforma. It has been made by the Planning Division. <https://plandiv.gov.bd/site/forms/22f6c24f-0cc5-40d8-9874-bc9277c68643/%E0%A6%A1%E0%A6%BF%E0%A6%AA%E0%A6%BF%E0%A6%AA%E0%A6%BF-%E0%A6%9B%E0%A6%95>

the DPP is sent to the Planning Commission, along with the meeting minutes (Jabbar, 2024).

In the Planning Commission, a Project Evaluation Committee (PEC) minutely evaluates and assesses the DPP. The Planning Commission also checks the clearance from the FD and the ERD. If the project fails to fulfill the requirements of PEC, then it is sent back to the ministry again for further clarification and modification. When the committee accepts the DPP, there are two ways to get approval. Firstly, the Minister of the Planning Ministry approves the project if the total allocation is less than 50 crores. In other cases, the DPP is sent to the ECNEC along with the summary of the project approved by the planning minister when the allocation for the project is above 50 crores (Figure 12). The ECNEC's chairperson is the government's head. ECNEC is the supreme authority for project approval (Hamiduzzaman, 2012; Jabbar, 2024).

Figure 12: Project approval process



Source: Guidelines of the Planning Division and from the work of Jabbar, 2024, Compiled by the author.

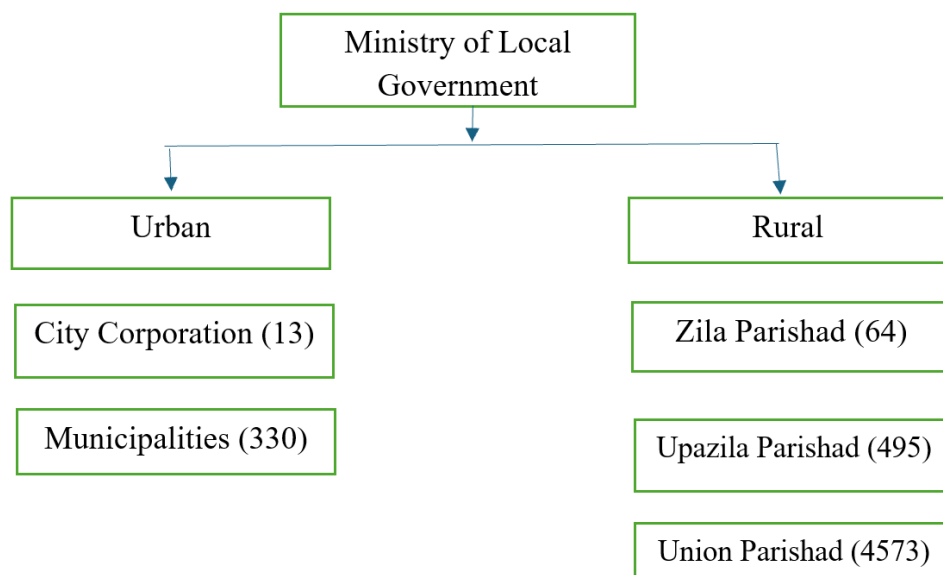
After the project's approval, the Project Director (PD) is recruited. Then, other project personnel are employed. There are two further committees to manage the problems and challenges of the project in the implementation stage. One is the PIC (Project Implementation Committee), and the other is the PSC (Project Steering Committee). When the project faces any problem, it is first raised in the PIC meeting. If PIC fails, then PSC comes forward (Jabbar, 2024; Hamiduzzaman, 2014). These Committees communicate vertically to the field to minimize the challenges and to solve problems. One striking point is that no member from the field is included in both PIC and PSC. The Financial Express (2019) points out that all the members of these committees are from line ministries, relevant ministries, and implementing agencies.²⁰ Field or district offices are skipped out, though they are linked in the pre-approval and implementation stages of the project directly. However, they have no direct connection in the approval stage.

3.4. The local government context

Apart from the projects mentioned above, local government bodies in Bangladesh usually take on and implement some projects separately. Before discussing their project procedure, it is essential to know briefly about the structure of the local government of Bangladesh. It is categorized into two segments based on territorial aspects: urban and rural. There are three tiers of rural local government in Bangladesh: Zilla Parishad (District Council), Upazila Parishad (sub-district council), and Union Parishad (lowest tier). Meanwhile, the urban local government is two-tiered: City Corporation and Pourasova (Municipalities) (Figure 13) (Ahsan, 2010; Pandey, 2022).

²⁰ The newspaper also indicates that the officers of the ministries and agencies compete to get included in those committees, as there is a provision of an honorarium for participating in the meeting.
<https://thefinancialexpress.com.bd/economy/bangladesh/honorarium-culture-eats-up-sizeable-funds-of-projects-1570420772>

Figure 13: Local Government structure of Bangladesh

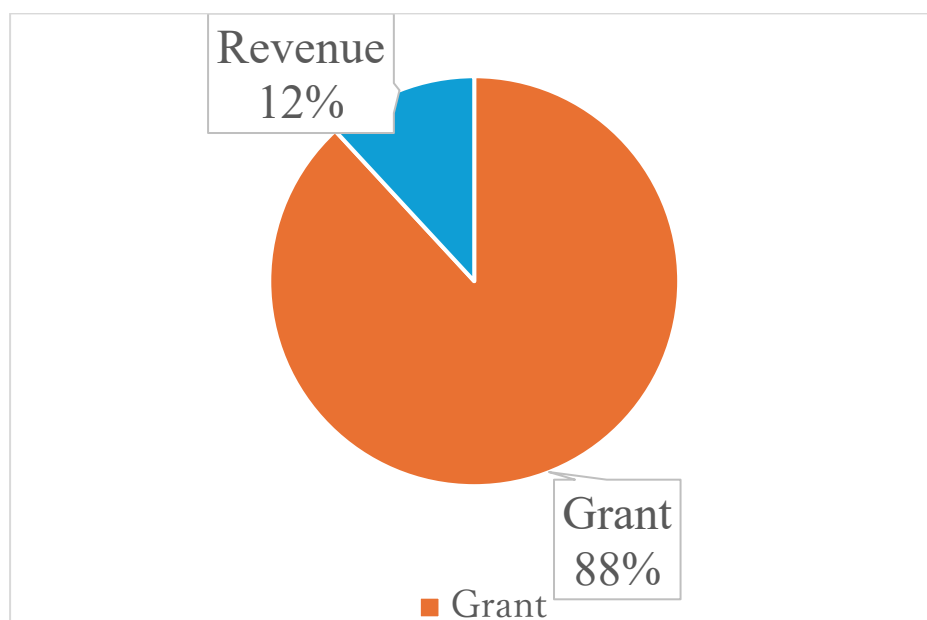


Source: Bangladesh Bureau of Statistics and the Ministry of Local Government and from the work of Pandey, 2022, Compiled by the author.

3.5. Source of allocation for local government bodies to implement projects

All the local government bodies have separate guidelines. But basic functions are the same. They have the authority to collect revenue. It is expected that they will bear their operating cost by collecting revenue. If there is any surplus at the end of the fiscal year, it will be transferred to the development fund of the following year. However, the reality is different. Most local government bodies have to survive on government subsidies except city corporations and some municipalities (Kader & Ullah, 2020; Rahman et al., 2018). An example of a Union Parishad of Meghna upazila of Cumilla district has been depicted for better understanding (Figure 14).

Figure 14: Revenue and grant ratio of Gobindapur Union in the fiscal year 2022-2023.



Source: Collected from the UP website,²¹ compiled by the author

The scenarios are the same in most of the local government bodies. Considering the background, the Ministry of Local Government allocates block grants for each local government organization for local development. With this allocation and surplus revenue (if any), they take development projects with the approval of the Local Government Ministry. Compared to the national development expenditure, the volume of these projects is insignificant (Kader & Ullah, 2020). This kind of project has no direct relation to DDCC. But, DC can inspect those projects based on the merit of the post.

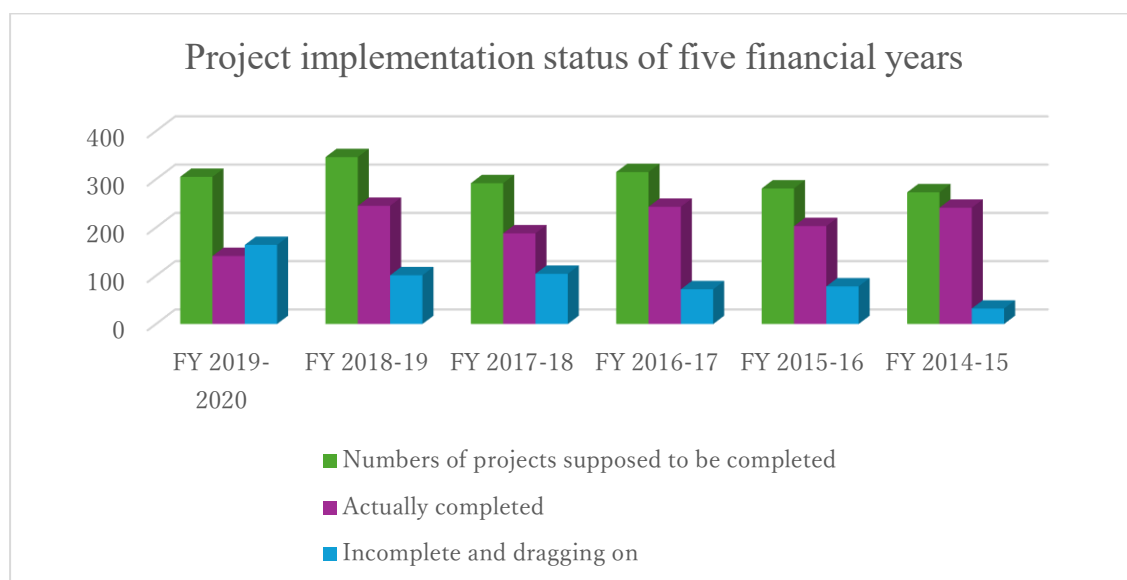
Nonetheless, this type of special project creates no bar for the local government bodies to take and implement development projects at the national level.

²¹<https://govindapurup1.comilla.gov.bd/bn/site/page/Lyoq-%E0%A6%AC%E0%A6%BE%E0%A6%9C%E0%A7%87%E0%A6%9F>

3.6. What happens in the implementation stage

It is time for implementation as soon as the project is approved. The implementation stage is not satisfactory. IMED (2021) finds out that half of the projects failed or were delayed in the fiscal year 2020-2021. The Daily Star (2023), a popular newspaper in Bangladesh, published a report on 'Bangladesh's tragic project implementation record' on October 12, 2023²². It portrays the poor performance of project implementation between 2016 to 2021. The average project implementation time was over 7 years (The Daily Star, 2023) as opposed to the planned 3 years. The Business Standard²³ (2021) did a comparative analysis among completed, supposed-to-be completed, and incomplete projects for five consecutive financial years from 2015 to 2020 (Figure 15). The analysis shows that the number of incomplete and dragging-on projects is increasing gradually.

Figure 15: Comparison among five consecutive financial years on completed, supposed to be completed, and incomplete projects.



Source: Adapted from the Business Standard, (2021).

²² <https://www.thedailystar.net/opinion/views/news/bangladeshs-tragic-project-implementation-record-3441156>

²³ <https://www.tbsnews.net/bangladesh/infrastructure/too-many-incomplete-projects-put-squeeze-dev-spending-250663>

Moreover, the World Bank's Bangladesh Country Partnership Framework for FY2023-27 also forecasts a chronic delay in project implementation. Fifteen years ago, Ahmed (2010) said it is a common phenomenon in Bangladesh. Researchers (Pandey, 2007; Ahmed, 2010; Pandey & Ahsan, 2013; Hamiduzzaman, 2014; Amir, 2017; Ahsan, 2018; Pall, 2021; Rahman et al., 2022; Al-Mamun et al., 2023) and IMED consultants have identified many reasons behind project delays and failures. Ahmed (2010) classified the problems earlier into three preliminary categories: pre-project stage problems, shortage of resources, and problems during implementation, and Rahman et al. (2022), along with other researchers, supported this later.

3.6.1. Pre-project stage

- Project document submission delay.
- Improper preparation of DPP.
- Absence of all kinds of risk management analysis in DPP.
- Delay in project approval.

On June 14, 2022, the Daily Star reported, “The projects are delayed for poor preparations.” It states that projects are approved without adequate field consultation and proper feasibility study. Except for the delay in project approval, all three other issues are related to the field. Information gathering is one of the mandatory elements of a project document. The concept paper, a pre-stage of DPP, is based on field data. If the top agency fails to coordinate with the bottom properly, then the DPP starts with invalid data or lacks data. Multi-stakeholder effort is also essential in the field. Lack of cooperation among the field offices makes collecting all the necessary information difficult. The consequence is either delay or start again from the beginning (Hamiduzzaman, 2014; Rahman et al., 2018).

Al-Mamun et al. (2023) provide an example of the consequences of a weak feasibility study due to the lack of field consultation. In February 2021, ECNEC increased an LGED project from taka 2,530.43 crore to taka 3,926 crore, which was delayed for four years. The cost escalation and time extension resulted from an inadequate feasibility study (Al-Mamun et al., 2023). There are also instances of

projects, even without a feasibility study and stakeholder analysis, where the consequences are horrible. The Chattogram–Cox’s Bazar Railway Project is such a project that was approved in 2010, but the actual physical work started in 2018²⁴ (The Daily Star, 2023). Hamiduzzaman (2014) puts more emphasis on local stakeholder analysis before taking on a project to reduce such losses.

3.6.2. Shortage of resources (immediately needed after approval)

- Inadequate funds and delay in fund release.
- Delay in agreement with development partners.
- Complications in lining up and reimbursement of foreign assistance.
- Scarcity of skilled workers.
- Shortage of materials.

In this stage, there is no direct issue relating to the field. However, some associated factors in the field may trigger the situation worse. Besides, the fund release is intentionally delayed in case of a natural disaster or chaos in a district. In 2018, LGED took on a project that included 35 bridges in the southern part of Bangladesh, which is close to the Bay of Bengal. The project is not finished yet. The reasons for the project delay, have been shown in the RDPP (Revised Development Project Proposal) are natural disasters and local problems (The Daily Naya Diganta, 2025)²⁵.

3.6.3. Problems during implementation

- ❖ Land acquisition problem.
- ❖ Complexity of site and beneficiary selection.
- ❖ Delay in procurement.
- ❖ Delay of customs clearance,
- ❖ Agency's misappropriation of funds.

²⁴ The project was supposed to be completed in 2013 but finally finished in 2023. <https://www.thedailystar.net/news/bangladesh/news/inauguration-programme-chattogram-coxs-bazar-rail-line-begins-3466966>

²⁵ <https://www.dailynayadiganta.com/printed-edition/1yOJ8phkuIXF>

- ❖ Inability to spend the allocated funds.
- ❖ Lack of cooperation, collaboration, and coordination among departments.
- ❖ Insufficient inspection and monitoring.
- ❖ Project revision or component and content revision

In this stage, almost all the problems are linked to field departments. Land acquisition is one of the vital steps of project management. It is a complex and time-consuming process (Ahmed, 2010). The Shariatpur-Chandpur regional highway project has been started since 2019, but the project's physical progress is only 15%. “The reason is the delay in land acquisition,” said the Executive Engineer of the Roads and Highways Department. However, the Deputy Commissioner has said that the district administration is not alone liable here. Because three other departments (Public Works Department, Roads and Highways Department, and Forest Department) are involved in the process (The Business Standard, 2023)²⁶.

Realizing the fact, the government has recently instructed to take a separate project for land acquisition if it becomes mandatory for any project (The Planning Division Guideline, 2022). The district administration is directly responsible for land acquisition. Hence, both formal and informal relationships with district administration promulgate the activity of land acquisition (Pandey & Ahsan, 2013).

Site selection is another critical phase. In the three-day DC conference from January 24 to January 26, 2023, the issue of wrong site selection was discussed a lot. For instance, some bridges were built where there was no human settlement (The New Age, 2023)²⁷. Local administration and other offices have ‘full rationality’ of the local area. Project managers also must consult with related district offices before selecting the beneficiary. Any kind of coordination gap with them creates either project delay or revision (Hamiduzzaman, 2014). The Elenga-Hatikumrul-Rangpur highway upgradation project is delayed due to the failure to

²⁷ <https://www.newagebd.net/article/192664/action-against-flaws-in-projects-may-stop-time-cost-overruns>

remove some sensitive installations such as mosques (The Business Standard, 2022)²⁸. Another project was taken in 2020 to keep Mongla Port operational by dredging 'The Pashur River.' The problem started when the extracted sand was dumped into the nearby agricultural lands. The farmers denied and protested filling their agricultural land. The secretary of the Bangladesh Environmental Movement has said that this project was taken without any stakeholder consultation in the field and that they are dumping it on the wrong site. That is how the problem started (The Daily Star, 2022)²⁹.

Moreover, a considerable amount of money is wasted every year due to the lack of inspection and monitoring. Al-Mamun et al. (2023) provide an example in their study. The inauguration ceremony of the Dasherbandi Sewerage Treatment Plant (STP) was fixed on August 23, 2022, but the authority had to postpone it. Because the pipelines carrying the waste have not been built yet. Interestingly, pipeline components were not included in that project. This is another common scenario of project management in Bangladesh. Not only the design but also the lack of inspection and monitoring are liable for such scenarios (Al-Mamun et al., 2023). IMED must monitor and inspect development projects. According to the APA (Annual Performance Agreement) report of IMED (July 1, 2022, to June 30, 2023), the fixed target is to inspect 30% of the running projects. The target is actually less due to the shortage of manpower and resources. As they are overburdened, they can delegate the authority to local offices (Hamiduzzaman, 2014).

Another problem is the political intervention in project implementation. Some projects are taken only for the sake of political interest (Hossain, 2021). A project named 'Development of Important Rural Infrastructure on a Priority Basis' has been ongoing since 2010. Now, the third phase is running. This project has been undertaken to provide some block allocations to the Members of Parliament (MPs) to contribute to their parliamentary constituency area. Transparency International

²⁹ <https://bangla.thedailystar.net/news/bangladesh/agriculture/news-383581>

of Bangladesh (TIB)³⁰ finds that a portion of that allocation is utilized for political purposes only (TIB, 2020).

The horrible situation due to the lack of coordination has been depicted in the newspaper ‘Sokaler Somoy’. In the Jhenaidah district, the Roads and Highway Department took a project to make a culvert in the same place where the Water Development Board had made a bridge just five months ago. After demolishing the previous one, a new one will be made. More than 1.5 crore taka has been wasted here. The shocking part is that neither of the departments shared this fact in the DDCC meeting³¹ (The Sokaler Somoy, 2024).

Besides the above-mentioned classified problems, some researchers (Ahsan, 2018; Pall, 2021; Al-Mamun et al., 2023; Amir, 2017; Pandey, 2007) after Ahmed (2010) have revealed more problems: corruption, political interference, nepotism, inflation, poor institutional capability, improper sequence and phase of work, religious structures on project site. All of them are either directly or indirectly related to the bottom-level offices. However, Rahman et al. (2022), later on, show that all of these are within the three phases of Ahmed (2010).

3.7. Legal stand of DDCC in Development project implementation

There are two legal documents according to which DDCC is empowered to contribute to the development project implementation. One is the circular issued by the Planning Division (Guidelines for Development Project Formulation, Processing, Approval and Revision in the Public Sector) through memorandum number 20.00.0000.404.014.61.2020(Part-1)/133, dated June 12, 2022. According to section 1.1.3 of the circular, stakeholder analysis from the field is mandatory before taking on any project. Consent of field administration or other field offices must be considered in the pre-project stage, where applicable. Moreover, sections 1.4, 1.5, and 1.6 of the circular are directly related to the district offices. These

³⁰ https://www.ti-bangladesh.org/images/2020/report/MPBA/MPBA_EX_BN.pdf

³¹ <https://www.dailysokalersomoy.com/news/114877>.

sections are about land acquisition, proper use of land, and protecting the environment.

The other one is the Cabinet Division circular (No-04,00,0000,512.35.018.15-384, date: 01 October 2015) regarding the Composition, Scope, and Procedure of DDCC. It asserts that apart from the regular supervision and monitoring of the senior officers of line departments, DDCC's cooperation and collaboration are indispensable in implementing development projects. Basically, realizing this fact, the government has issued this circular empowering DDCC. The formation, scope, and procedures of DDCC are also explained in the circular.

3.8. Formation of DDCC

Chairman: Deputy Commissioner (District Administrator)

Advisor: All the members of Parliament within the territory of the district

Members:

- Heads of District Level Offices of other Government/Autonomous Institutions concerned with development activities
- Zilla (District) Parishad Chief Executive Officer
- The elected Chairmen of the Upazila Parishads of the respective districts
- Deputy Director, Local Government
- The Mayors of the Municipalities within the district
- Upazila Nirbahi Officers (UNO)
- Additional Deputy Commissioner (General)-**Member-Secretary**

If necessary, the committee may invite any district-level officer of any government/autonomous organization within that district. It can also request and invite any appropriate representative of a national-level organization located in the concerned district to co-opt in the committee and participate in the meeting. Moreover, it can include any person in that district following the rules and

regulations. However, the common practice seen in all districts is to include these members³²:

- Representatives of freedom fighters,
- President of the district Press Club
- President/secretary of the political party
- Representative of religious leaders
- Nominated members by the Members of Parliament
- Representative of the Women's Development Forum
- and Representative of civil society

The number of members varies from district to district. It fluctuates according to the district's size, population, category of the district, and the number of upazila under a district. In this committee, members of NGOs are not included. Because there exists a separate committee composed of NGOs only.

3.9. Scope of DDCC

DDCC's scope is multi-dimensional. It has to accomplish many tasks. Its interaction cannot be specified within the boundary of the legal framework. Some activities of DDCC have become common in all the districts based on practice, and some of them are far beyond legal charters (Mamun, 2018; BSS, 2025). However, these are the standard scopes of DDCC based on legal documents³³:

- ❖ Monitoring and coordinating activities for implementing development projects/programs undertaken by various departments and organizations.
- ❖ Inspect development projects/programs from time to time and provide necessary advice and information to project/program-related departments.

³² Based on the author's experience in three districts (Shariatpur, Cumilla, Brahmanbaria) between January 20, 2013, and February 20, 2022. A similarity was also found in the attendance sheet of the meetings of Shariatpur district from October 2019 to June 2024.

³³ Based on the Cabinet Division, Planning Division, Economic Relations Division, and Implementation Monitoring and Evaluation Department circulars.

- ❖ Reviewing the physical and financial progress of development projects/programs and sending necessary recommendations to the Divisional Development Coordination Committee/Central Government.
- ❖ Review the impact of any project/program on the country's socio-economic development or the related area.
- ❖ Collecting relevant information/reports from the project implementing department (where applicable) and, after reviewing them, draw the attention of the Divisional Development Coordination Committee/Government.
- ❖ Monitoring whether the recommendations/decisions of the committee are being implemented by the concerned departments/organizations and reviewing them.
- ❖ And implement the recommendations of the Divisional Development Coordination Committee/Government.

Apart from these activities, some activities are based on long-term practices. According to the researcher Mamun (2018), the DC office is the eye, ear, and hand of the government in a district. DC is the representative of the national government at the field level. There is little or no activity in the district that is not related to DC (Hasan, 2015). Hence, DC's own tasks are also mingled with DDCC. These tasks³⁴ are:

- To make sure every department is running smoothly.
- If any department faces any problem locally, it tries to solve it.
- In case of an extreme manpower shortage in any department, it is included in the meeting minutes to attract the higher authority.
- It minimizes any tension among the departments or officers in the district.
- To monitor the activities of Upazila Parishad and the Administration.
- To resolve any public nuisance within the district.
- To discuss any urgent/emergency issues of the country/district

³⁴ Moreover, the author's involvement in field administration from January 20, 2013, to February 20, 2022, in the field, also experienced these activities.

3.10. Procedure of the meeting

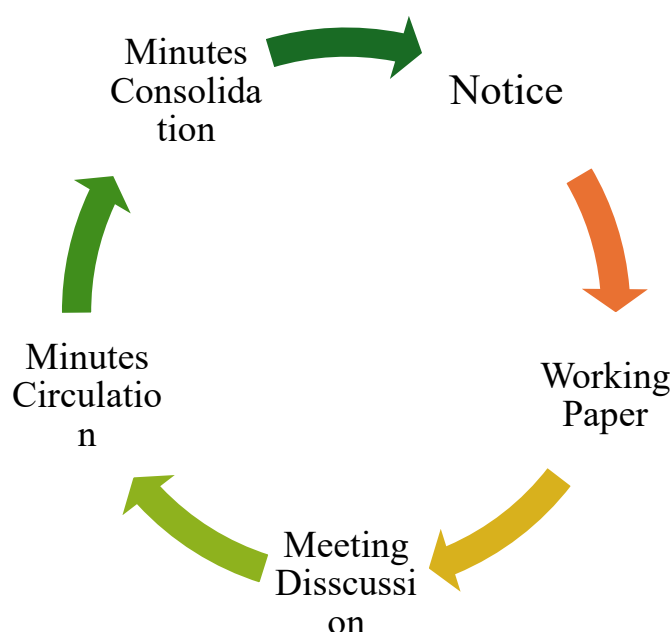
It is mandatory to organize a monthly meeting. The procedures of the meeting are mentioned in the circular. These are:

- ◆ Hold meetings on a fixed date each month.
- ◆ If there is a holiday on the scheduled date, hold the meeting on the next working day.
- ◆ Prepare a working paper based on the agenda of different departments
- ◆ Convene emergency meetings if necessary.
- ◆ Preparation of meeting minutes based on the information received from the concerned departments.
- ◆ Confirmation of attendance of members at meetings.
- ◆ Minutes of meetings are promptly circulated to all concerned.
- ◆ And regularly inform the Divisional Development Coordination Committee and the government about the committee's activities.

DDCC meetings are held in the office of the DC (Deputy Commissioner, Chairman of the meeting). The government has fixed 10 a.m. of every third Sunday of each month³⁵ for a DDCC meeting at every district simultaneously to avoid confusion. However, if there is a holiday, it will be held on the next working day. Though the date and time are fixed, a notice is issued and circulated to all (every month) asking for the agenda of the meeting. Officials of the DC office prepare a working paper, accumulating the agenda from all. The meeting is conducted based on the working paper (Figure 16). But anybody can raise any issue in the meeting, even outside the working paper. Within a week of the meeting, the minutes are prepared and circulated to all concerned. In the next meeting, if anybody finds anything contradictory in the minutes, s/he can raise it. Then, the minutes are modified and consolidated (The Cabinet Division, 2015 & 2016).

³⁵ The date and time have been fixed so that the central government can disseminate any information or idea very quickly to all district officers.
https://cabinet.portal.gov.bd/sites/default/files/files/cabinet.portal.gov.bd/page/2e33b885_928e_4bd7_9581_8bd7c3b5b8b4/Division-coord%20meeting.pdf

Figure 16: Meeting procedure of DDCC



Source: The Cabinet Division Circular of 2015 and 2016, Compiled by the author.

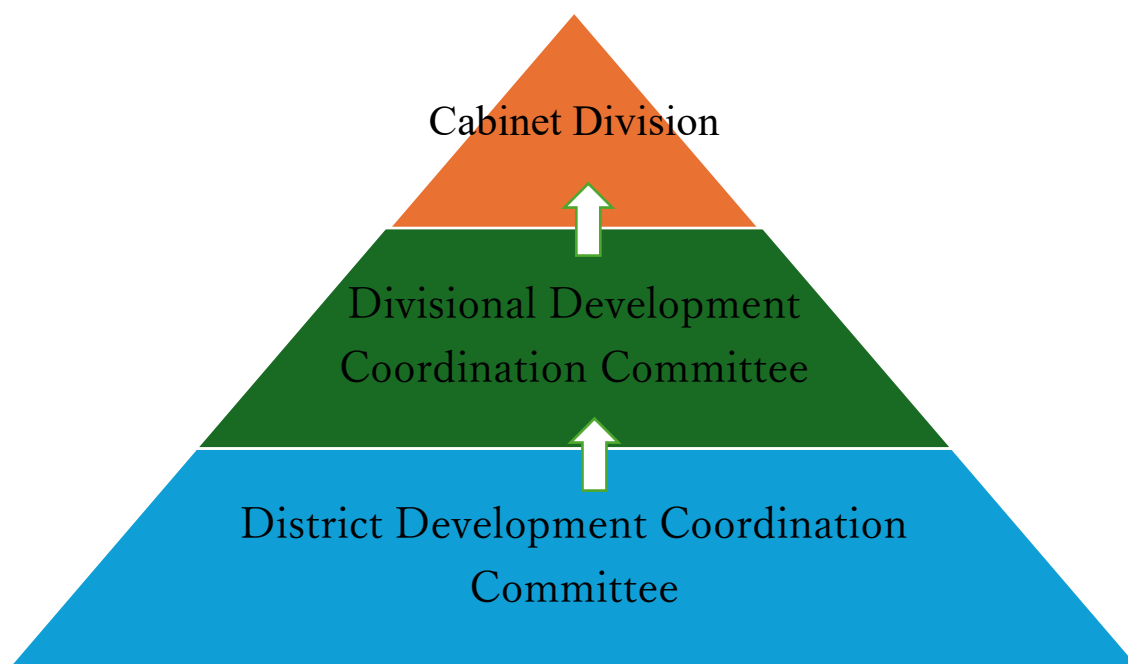
In the meeting, if the DDCC fails to mitigate any problem or wants to inform the government of any issue, it can forward it to the Divisional Development Coordination Committee, which communicates with the Cabinet Division (Figure 17). The Division is a geographical administrative unit combining several districts. It is the highest tier of field administration. But no local government elections are held there. So, there is no politically elected body. Instead, it is called Divisional Administration. Governments only appoint representatives from central ministries in Divisional Administration. All the ministries have their appointed delegates in the Division. Their main job is to look after the activities of the concerned departments in the district and send the reports above (Ahsan, 2010).

According to section 26 of the Allocation of Business Among the Different Ministries and Divisions of Bangladesh (Schedule 1 of the Rules of Business, 1996)³⁶, the Cabinet Division manages inter-ministerial coordination. DDCC is now

³⁶ According to article 55(6) of the constitution of the People's Republic of Bangladesh, the President of Bangladesh makes rules for the allocation and

empowered to communicate directly with the Cabinet Division and other ministries to simplify the matter for the field (The Cabinet Division, 2014; Ahsan, 2012).

Figure 17: Communication of DDCC



Source: Ahsan, 2012, Compiled by the author.

3.11. Effectiveness of DDCC

The effectiveness of the DDCC mainly depends on the timely dispatch of information by the concerned departments for the preparation of meeting papers and their personal attendance in the meeting (The Cabinet Division, 2015). Moreover, the active participation of the members in the meeting and their sincere efforts in making decisions are highly desirable. Considering the public interest, the

transaction of government business. This is called Rules of Business. The first schedule of it is called Allocation of Business Among the Different Ministries and Divisions of Bangladesh.

https://cabinet.portal.gov.bd/sites/default/files/files/cabinet.portal.gov.bd/legislative_information/13237291_40e2_4538_84ab_37ec65fe11ea/Allocation%20of%20Business%20R-20140001.pdf

government gives maximum emphasis to the activities of the coordination committee. The citizens will suffer if it does not function properly (Banglanews24.com, 2024). Apprehending that, the government has made the attendance of every member in DDCC's meeting mandatory. In order to facilitate proper monitoring of the matter, the chairpersons have been instructed vide memorandum No. 04.512,082,00,0000,002,2010-223 dated 21.8.14 of the Cabinet Division to send the reports regarding the attendance of the members to the Prime Minister's Office and the Cabinet Division regularly.

3.12. Elected Political Leaders' affinity with DDCC

In spite of having legal standing, it has several drawbacks. There are conflicts seen between the Member of Parliament and the Upazila Chairman. They share almost the same electoral demarcation, and the voters are also the same. However, in some cases, more than one upazila makes a parliamentary constituency. The Upazila Chairmen claim that they cannot work independently due to the unnecessary interference of MPs. On the other hand, MPs deem Upazila Chairman as a possible rival in the next parliamentary election. Almost in every district, the conflict is an open secret (Pandey & Ahsan, 2013).

There are 300 parliamentary constituencies in Bangladesh, geographically covering the whole country. Parliamentary constituencies are composed of urban and rural areas. However, there are some exceptions. For example, Dhaka South City Corporation has seven parliamentary constituencies without covering any rural area³⁷. Except for City Corporations, all the parliamentary constituencies cover

³⁷ According to the law 'the Delimitation of Constituencies Ordinance, 1976' (Ordinance No. XV of 1976), the demarcation of parliamentary constituency is determined.

<https://www.ecs.gov.bd/bec/public/files/1/Law/%E0%A7%A9%E0%A7%A6%E0%A7%A6%20%E0%A6%86%E0%A6%B8%E0%A6%A8%E0%A7%87%E0%A6%B0%20%E0%A6%B8%E0%A7%80%E0%A6%AE%E0%A6%BE%E0%A6%A8%E0%A6%BE%20%E0%A6%A8%E0%A6%BF%E0%A6%B0%E0%A7%8D%E0%A6%A7%E0%A6%BE%E0%A6%B0%E0%A6%A3.pdf>

urban and rural areas. Municipalities and city corporations in Bangladesh are considered urban areas, whereas upazila, union, and villages are rural. Hence, both would-be and running MPs try to maintain a good relationship with the Mayor, Upazila Chairman, and Union Parishad Chairman for the next parliament election. However, due to the different political dimensions, there are conflicts. The conflict becomes imminent because of the competition among several candidates in a constituency within a political party for the national parliament election. Furthermore, if the MP is from one political party and the Upazila Parishad Chairman is from another, they always have tension. When there are conflicts between the MP and the Upazila Parishad Chairman, the Union Parishad Chairman chooses a side depending on the political situation. Sometimes, some of them are in a neutral position too.

The consequence of the conflict is awful for the people. This conflict heavily hampered development work in the Barura upazila of Cumilla. MP's development budget was not implemented due to the resistance of the Upazila Parishad Chairman. In the same way, the allocation of Upazila Parishad was also returned due to the opposition of Union Parishad Chairmen, who are actually followers of MP. DDCC fails to minimize the problem. Even the Deputy Commissioner personally tried but failed. Unfortunately, it is the local people who are deprived³⁸ (The Daily Prothom Alo, 2023).

Members of Parliament (MP) hardly attend the meeting. Locally elected political persons (Chairman and Mayors) also frequently remain absent. In district 'X', from October 2019 to June 2024,³⁹ 38 DDCC meetings were held. Due to the

³⁸ <https://www.prothomalo.com/bangladesh/district/x5fmzvc4qu>

³⁹ On August 5, the then government was overthrown. In July 2024, the situation of the country was chaotic. The attendance sheet of that month is not available. All Upazila Chairmen and Mayors of the country were removed from their position since 19th august, 2024 by a gazette notification. No local government election was held after that. For this reason, the author does not collect any attendance sheet after June 2024.

COVID-19, from March 2020 to September 2021, all the meetings were held online. No record of attendance at online meetings is preserved. In the 'X' district, six Upazila Parishad Chairmen and two Mayors are DDCC members. The total attendance of the elected politicians for 38 meetings should be $38 \times 8 = 304$. However, the total attendance was found to be only 88. The percentage of remaining absentees is more than 70%. The name of the district and the attendance sheets will not be disclosed in this study for security purposes. However, if anyone is interested, s/he can see it discussing it with the author.

Another thing is that the locally elected politicians become more active before and after the election. In Bangladesh, the last local government election was held in 2024, starting in May (IFES, 2024)⁴⁰. The attendance sheets show that the total attendance is 37 in 2023 (Appendix 1), whereas in 2022, the total is 20, almost half of the next year. In 2019, there was another election (The Daily Star, 2019)⁴¹. The total attendance for the last three months of 2019 is 8. After that, COVID-19 started to spread. However, attendance in the last three months of 2019 is more promising than in 2022.

Anyway, the attendance of politically elected leaders in DDCC meetings is not satisfactory.

Despite limitations, DDCC has ample scope to contribute to the implementation of development projects. However, the desired outcome is yet to take place. No research has yet been conducted on why it cannot achieve the expected success. Ahsan (2018) shows several reasons for the failure of inter-organizational coordination at the upazila level. Other researchers (Ahmed, 2010;

<https://www.daily-sun.com/post/762679>

<https://en.prothomalo.com/bangladesh/government/c092gz7lpa>

⁴⁰ <https://www.ifes.org/tools-resources/faqs/elections-bangladesh-2024-upazila-elections>

⁴¹ <https://www.thedailystar.net/tags/upazila-election-2019>

Pall, 2021; Al-Mamun et al.; Amir, 2017; Pandey, 2007) and IMED consultants have emphasized inter-organizational coordination for successful project implementation. Most importantly, DDCC is the one and only district-level organization for inter-organizational coordination aiming at implementing development projects. Hence, the context demands systematic research on DDCC.

CHAPTER FOUR: METHODOLOGY, DATA ANALYSIS AND FINDINGS

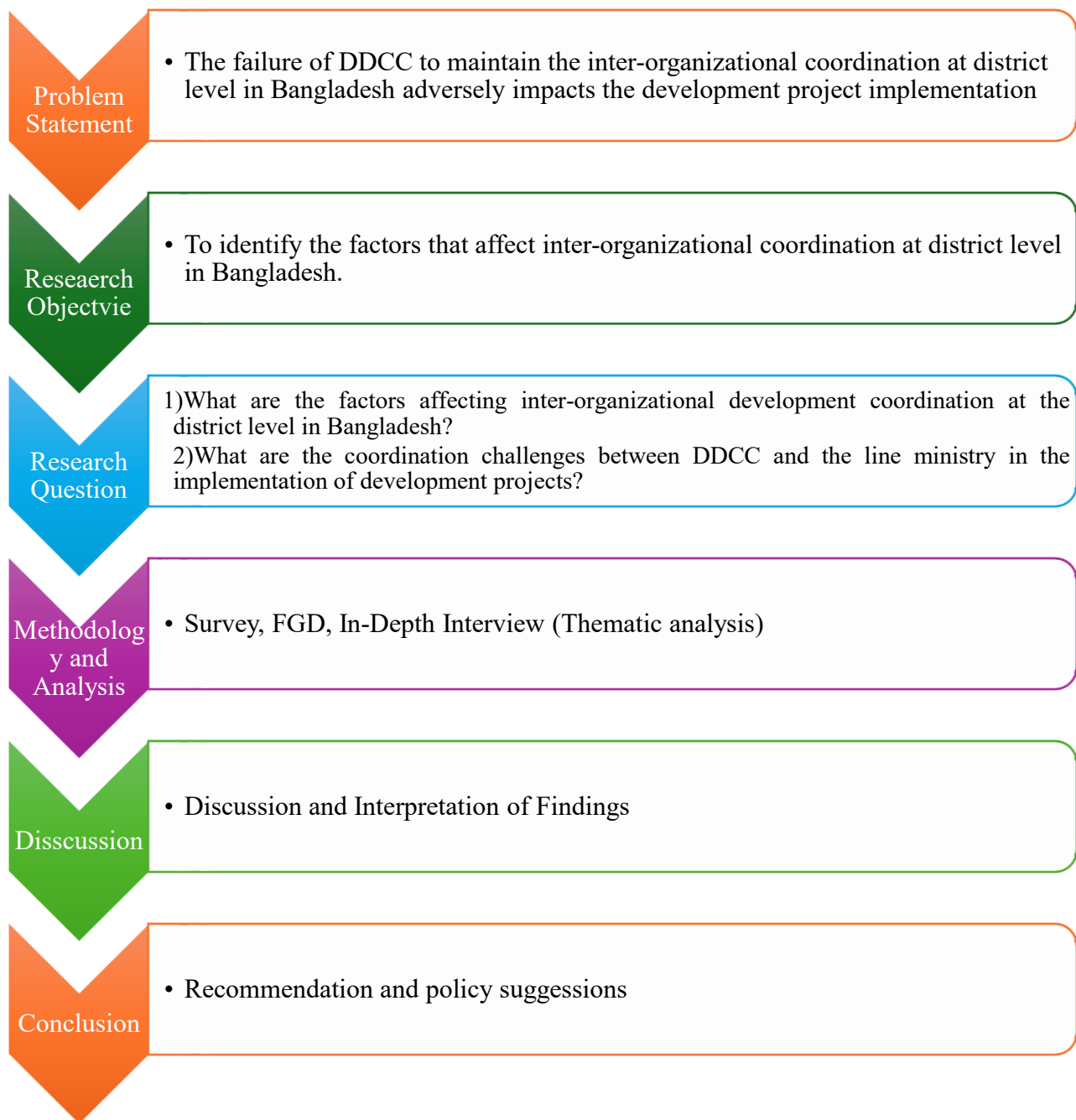
4.1. Introduction

This chapter highlights the research method, sampling, data collection method, the procedures and steps of data collection, data presentation, analysis of the data, and findings.

4.2. Research Framework

Figure 18 outlines the research process for attaining the objective based on the background study and the literature reviewed in the second chapter.

Figure 18: Outline of the research.



Source: Constructed by the author.

4.3. Research Design

This study follows qualitative research methodology to describe the factors that hindered inter-organizational coordination at the district level of Bangladesh by conducting in-depth interviews. By quantifying, it is not possible to find the underlying issues of this case study (DDCC only) because it needs in-depth analysis

and deeper understanding. The experience and knowledge of the members of the DDCC need to be interpreted to discover the coordination challenges. Moreover, the author of this study wants to refrain from intervening and controlling the condition to limit the findings. The approach of this research is shown in Figure 19.

Figure 19: Research Approach



Source: Constructed by the author.

4.4. Data Collection Method

Qualitative methods have been selected for this research to describe the coordination challenges. To identify the underlying issues of DDCC's failure to ensure inter-organizational coordination, it was necessary to explore the perceptions and experiences of DDCC members. In qualitative research, various data collection methods are used, such as in-depth interviews, focus groups, and observations based on the research question (Mills & Birks, 2014). The author used in-depth interviews, surveys, and Focus Group Discussion (FGD) in this study. Generally, in in-depth interviews, the questions are mostly open-ended and less structured. However, this study's questions are not fully unstructured but semi-structured. As the topic of this study is pre-determined, semi-structured questions were preferred over unstructured questions. In the case of the survey, a modified semi-structured questionnaire including open and closed-ended questions was used, giving importance to the variables of the conceptual framework. Topic-based discussions were held at the FGD.

4.4.1. In-depth interview

The interviewees of an in-depth interview are subject matter experts. A subject matter expert "has specialist skills, knowledge, and experience in a particular field" (Hopkins & Unger, 2017, p.228). All the participants of this study are DDCC members. They have in-depth knowledge and experience in project implementation at the root level. This interview technique was used to identify the hidden reasons that create hindrances in inter-organization coordination. A semi-structured questionnaire was made for this purpose. (Annex 2)

The interview started with general greetings and some chit-chat for ice-breaking. For example, 'By the way, your pen case is beautiful.' Where did you buy it? Or, in another way, to make the environment easy. Before the interview, the author also tried to learn about their hobbies and interests. Talking about their interests helped to melt the ice quickly. Then, the focus was given to the topic.

However, before asking the main questions, the author started with some common questions about the development issues of Bangladesh. For example, the volume of the national development budget and the number of development projects are increasing. What is its impact on the local/field level? What about the working volume compared to last year? How far has the nature of work changed from before? These things triggered them to focus on the central issues. Then, the main questions were asked.

Ethical issues were explained to the participants at the start of the interview. After that, the issue of recording was raised. In terms of "recording," the author received mixed responses. Some people allowed the author to record, while some refused. Some people initially did not allow the author to record the interview, but towards the end, they seemed comfortable and allowed to record and have the same questions again. They repeated what they said before. Finally, only two interviewees did not permit their interview to be recorded. In the case of these interviewees, the author took detailed notes (during and after interviews).

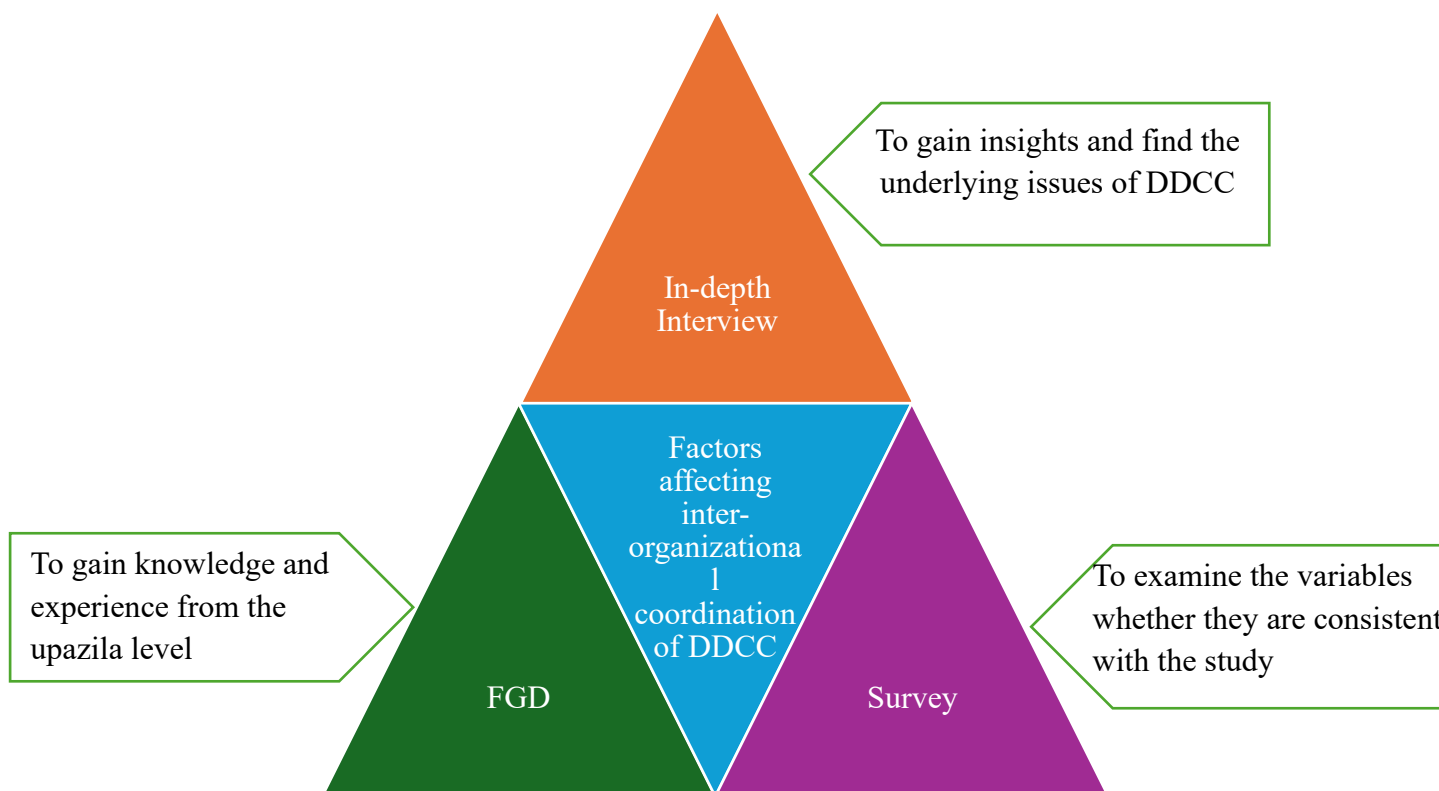
4.4.2. Focus Group Discussion

It is also a common qualitative approach to deeply understanding social problems and issues. This approach selects a group of people purposively rather than a statistical representation of a broader group of people to gain data. These people share the common characteristics and experiences of the targeted social problems and issues (Nyumba et al., 2017). The FGD participants of this research were selected from the upazilas. Both the Upazila Chairman and UNO (Upazila Nirbahi Officer) are members of DDCC from the Upazila. Moreover, they are the main stakeholders of an upazila in the development policy implementation. The FGDs were conducted online. Because the high officials of an upazila cannot travel to another station without the approval of the higher authority.

4.4.3. Survey

A survey is generally used in quantitative research to collect numerical data to identify patterns and causal relationships among variables (Cresswell, 2017). However, this approach has been used in this study to serve two purposes. Firstly, some variables have been found in the existing literature affecting inter-organizational coordination. This approach was used to examine those variables and to appreciate new ideas. Secondly, the author used this approach for triangulation (Figure 20).

Figure 20: Method triangulation



Source: Motivated by the work of Benedicto, 2022

4.5. Sampling Method

There are 64 districts in Bangladesh. Except for three hill districts, every district of Bangladesh has a forum of DDCC, which monitors, inspects, and implements development initiatives/projects at the root level. Generally, the total number of members of this committee is around 40. However, it fluctuates according to the district's size, population, and with several other indicators.

The author has selected three districts (Cumilla, Brahmanbaria, and Shariatpur) based on several criteria to narrow down the issue. The criteria are the size, population, number of sub-districts (upazila), and the volume of the projects within a district. Additionally, the number of members of DDCCs was also taken into consideration. Against the above background considerations, all the districts have been categorized into three: big, medium, and small. One district has been selected from each category, prioritizing the volume of projects within that district. Cumilla district was chosen from the big category, and Sharitapur district was selected from

the small category. Brahmanbaria district was preferred, considering its average genre.

4.5.1. Sampling for the in-depth interview

A non-probability sampling method, a purposive sampling method, was used in this study. In total, 29 members of DDCC and an NGO representative were interviewed from three districts (Table 4). Among 30 members, 12 from Cumilla, 10 from Brahmanbaria, and 8 from Shariatpur were the respondents. All the Deputy Commissioners of the three districts were interviewed as they are the Chairman of this committee. Engineering departments are the most important stakeholders of DDCC in terms of the development project implementation. Executive Engineers of the Local Government and Engineering Department (LGED), Roads and Highways (R&H) Department, and Public Works Department (PWD) of three districts were interviewed, considering their importance. Sub-district Officers (UNO) and locally elected political leaders are also highly connected to the development project implementation at the root level. For this reason, one influentially elected political leader and a sub-district officer (UNO) from each district were selected as well as interviewed. One technical officer (Except Engineers) and one general officer from each district also responded to the interview. No other people from Shariatpur district were taken into consideration. In both Cumilla and Brahmanbaria districts, a civil society representative and the press club president were interviewed. The press club president was selected because he can speak from an independent point of view. On the other hand, civil society representatives can accurately picture the project's impact at the field level. Additionally, a religious leader and an NGO representative who are also members of DDCC were selected for interviews in the Comilla district. In the context of Bangladesh, religious leaders have a significant impact on rural society. After all, it is ensured that people from all segments of DDCC are interviewed. However, no people with less than three years of experience in DDCC were considered.

Moreover, two high officials from the central ministries are also interviewed. One is the additional secretary from the Ministry of Public Administration, and the

other is a joint secretary from the Cabinet Division. The author also interviewed the Chairman of the Public Administration Department of Cumilla University.

Table 4: The in-depth interview participants from DDCC (Including NGO representative)

	Cumilla	Brahmanbaria	Shariatpur
Deputy Commissioner	1	1	1
Executive Engineer (R&H)	1	1	1
Executive Engineer (LGED)	1	1	1
Executive Engineer (PWD)	1	1	1
UNO (Upazila Nirbahi Officer)	1	1	1
Locally Elected Political Person	1	1	1
General Officer	1	1	1
Technical Officer (Except engineers)	1	1	1
Representative of Civil Society	1	1	-
President of Press Cub	1	1	-
Religious Leader	1	-	-
NGO Representative	1	-	-
Total	12	10	8

4.5.2. Sampling for FGD

The author has conducted three FGDs in three districts. The participants are the Upazila Chairman and UNO, who were purposively selected by the author for convenience. In the Cumilla district, 6 people participated from three upazilas. Among them, three are Upazila Chairmen and three UNOs. Four people participated for each FGD in both Brahmanbaria and Shariatpur districts. Two of them are Upazila Chairmen, and the rest are UNOs. All the FGDs have been conducted online. The participants did not allow recordings. The author took all the notes during the discussion.

4.5.3. Sampling for the survey

There was no random sampling. The author collected the participants' emails from each of the three districts. Then, a Google form link (Appendix 3) containing the survey questionnaire was sent to them. Besides, hard copies were provided to those who do not have Google accounts or feel uneasy about replying to Google forms. The author distributed 73 forms altogether, and out of them, 61 people responded to the survey.

4.6. Recruiting the interviewees

The author personally communicated with each district's ADC (Additional Deputy Commissioner) to reach the interviewees two months before the interview. Formal and informal channels were used to communicate with the ADCs, such as email, writing letters, and social networking sites. All of the ADCs gave assurance that they would manage and communicate with the selected members on behalf of the author. Two different approaches were taken to reach the interviewees of the three districts.

In the case of Shariatpur and Brahmanbaria, ADCs provided the author with the email IDs of selected members of DDCC. Then, the author sent emails and communicated through other social media approximately one month before the interview. In Brahmanbaria, 15 members of DDCC were preliminarily contacted for the in-depth interview, and 12 responded positively. Out of the 12 members, 10 were finally interviewed. Two officers remained busy with their official work due to the sudden visit of high officials. In Shairatpur, 13 people were contacted for the in-depth, and 9 people responded positively. Out of 9, 8 members were interviewed. One remained absent for personal reasons. The author also got help from colleagues who are working in DC offices. All the schedules were made with their help. The author reached the interviewees without any further hassle.

One important thing is that all the members of DDCC must attend the meeting. It is a good opportunity to meet all the members at that meeting. However, being present personally in three districts at a time was impossible. The author decided to present physically at the DDCC meeting of Cumilla to communicate with the selected members for the date and time of the interview. Additionally,

verbal instruction was given to the ADC of Cumilla to help the author in data collection by an additional secretary of the Ministry of Public Administration. The author has a personal relationship with him. The author sought this assistance for the Cumilla district only, considering its big size and grandeur. No direct communication with the interviewees was made before the author's presence in the DDCC meeting.

As Cumilla is a big district with more DDCC members than any other district, the author decided to present physically at its DDCC meeting. Prior permission has been obtained from the Chairman of DDCC (DC) to be present at the meeting. Later in the meeting, the Deputy Commissioner (Chairman of DDCC) introduced the author to the other members. Moreover, he also asked the selected members to help the author. Because of this announcement from the Chairman, it became easy for the author to reach the interviewees. The author personally communicated with the selected members as soon as the meeting was finished. Then, the date and time were fixed in the presence of all the members. So, there was no duplication of time and date.

The survey link was sent with the help of an assistant commissioner of each DC office whom the ADC assigned. Interviewees for FGDs were contacted with the help of UNOs. The author personally communicated with them.

4.7. Interview proceeding

In Cumilla's DDCC meeting, the author briefly described the aim of the research. Then, the interview procedure was explained in detail. The interview's purpose and the interviewees' confidentiality were also explained. They were also informed of the possible duration of the interview. As all interviewees have their own offices, it was decided to conduct face-to-face interviews in their offices. An online interview option was also given, but no one preferred to do it online. The interview's date, place, and time were finalized at this first meeting. Because of the presence of all members, there was no duplication.

In the case of Shariatpur and Brahmanbaria districts, there was no face-to-face meeting before the interview. So, all the information was sent to them either by email or via ADCs of respective districts. The interview's date, place, and time

were fixed through online communications. In these two districts also, no one preferred the option of online interviews. A face-to-face interview was conducted in the office of the interviewees.

4.8. Schedule and duration of the interviews

The author spent one month from 20th January to 20th February of 2025 for data collection. The author conducted 12 interviews in the Cumilla district from 23rd January to 31st January. Ten interviews were conducted in Brahmanbaria district from 31st January to 7th February. The author had to spend two days conducting interviews with two influential officers from the Ministry of Public Administration and the Cabinet Division between the 9th and 10th of February. Eight interviews were conducted in the Shariatpur district from the 11th to the 15th of February. Three FGDs were conducted online for three consecutive days from the 16th to the 18th of February. Most of the survey responses were collected virtually. However, some hard copies of survey responses were collected during the in-depth interviews.

The duration of the interview varied from person to person. However, no interview was less than 40 minutes long, and one interview with the Executive Engineer of LGED of Cumilla district lasted more than 3 hours. No more than two interviews in a day were covered.

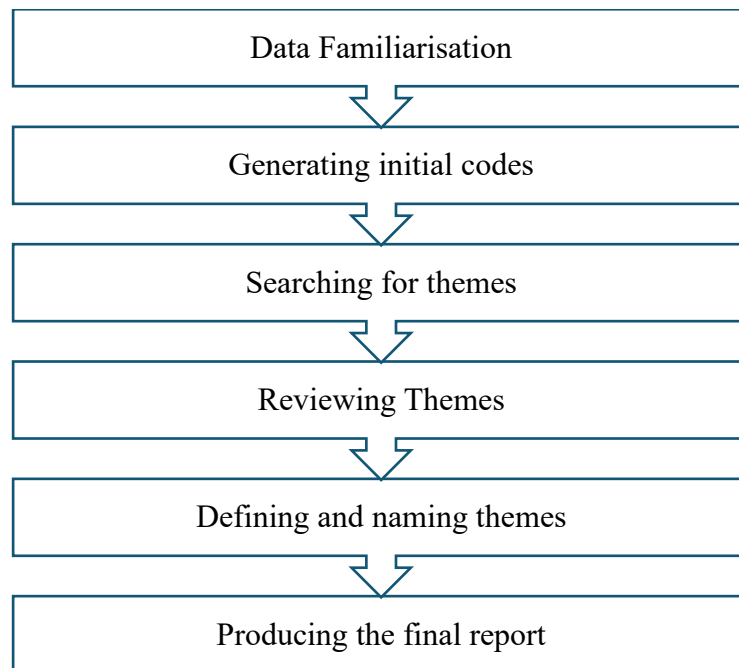
4.9. Data Analysis Method

Qualitative data can be analyzed in several ways. These are thematic analysis, content analysis, narrative analysis, discourse analysis, grounded theory analysis, and ethnography (Perera, 2023). Braun and Clarke (2006) consider thematic analysis a fundamental approach to analyzing qualitative data. It is a systematic process of identifying, analyzing, and searching for meaning, themes, or patterns to identify recurring items or issues, especially those related to the research topic. This method is also suitable for understanding knowledge, experience, thoughts, and behaviors when analyzing a large-scale data set. For these reasons,

the author has chosen the thematic analysis method to understand the underlying issues of DDCC.

According to Braun and Clarke (2006), thematic analysis has six main stages in analyzing qualitative data (Figure 21).

Figure 21: Six stages in analyzing qualitative data.



Source: Braun and Clarke (2006), Compiled by the author.

In the first stage, data are transcribed, and then reading and re-reading continue until the author finds meaning and views. The author writes down or underlines the important words or sentences. The second stage starts when the author is already familiar with the data. In this stage, preliminary codes are generated (Braun & Clarke, 2006). Boyatzis (1998) defined this initial code as a fundamental segment or element of raw data that can be judged meaningfully. There are two kinds of coding: inductive and deductive. Inductive coding derives from the data directly, and deductive coding is influenced by the researcher's theoretical framework or analytical concentration. Inductive code is data-driven, whereas deductive code is analyst-driven (Braun & Clarke, 2006). In the third stage, the

researchers categorize the various codes into themes and sub-themes. After reviewing them in the fourth stage, themes are defined and named. This stage cannot be started without an appropriate thematic map of the data. In the last stage, the final analysis and findings are reported (Braun & Clarke, 2006).

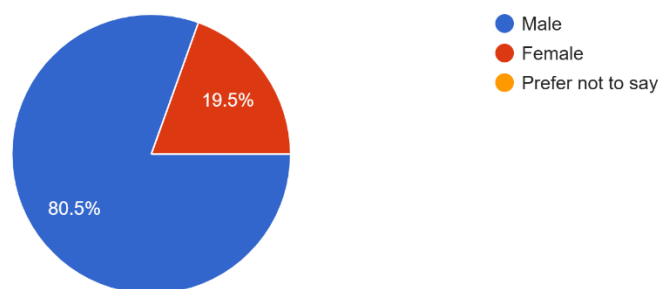
In this study, the author transcribes all the data from in-depth interviews and FGDs by himself without the assistance of any software application. Reading after reading, the data was coded, followed by an inductive approach. Creswell (2007) argues that it is better to inspect the qualitative data by others to ensure trustworthiness. The data of this study were inspected by a colleague of the author accordingly. After that, a thematic map was constructed to demonstrate a visual cross-connection between concepts and themes.

4.9.1. Data Presentation

Profile of survey respondents

A total of 73 invitations were sent, and 61 responded to the survey. All of them are DDCC members. The gender percentage of the participants is presented in Figure 22.

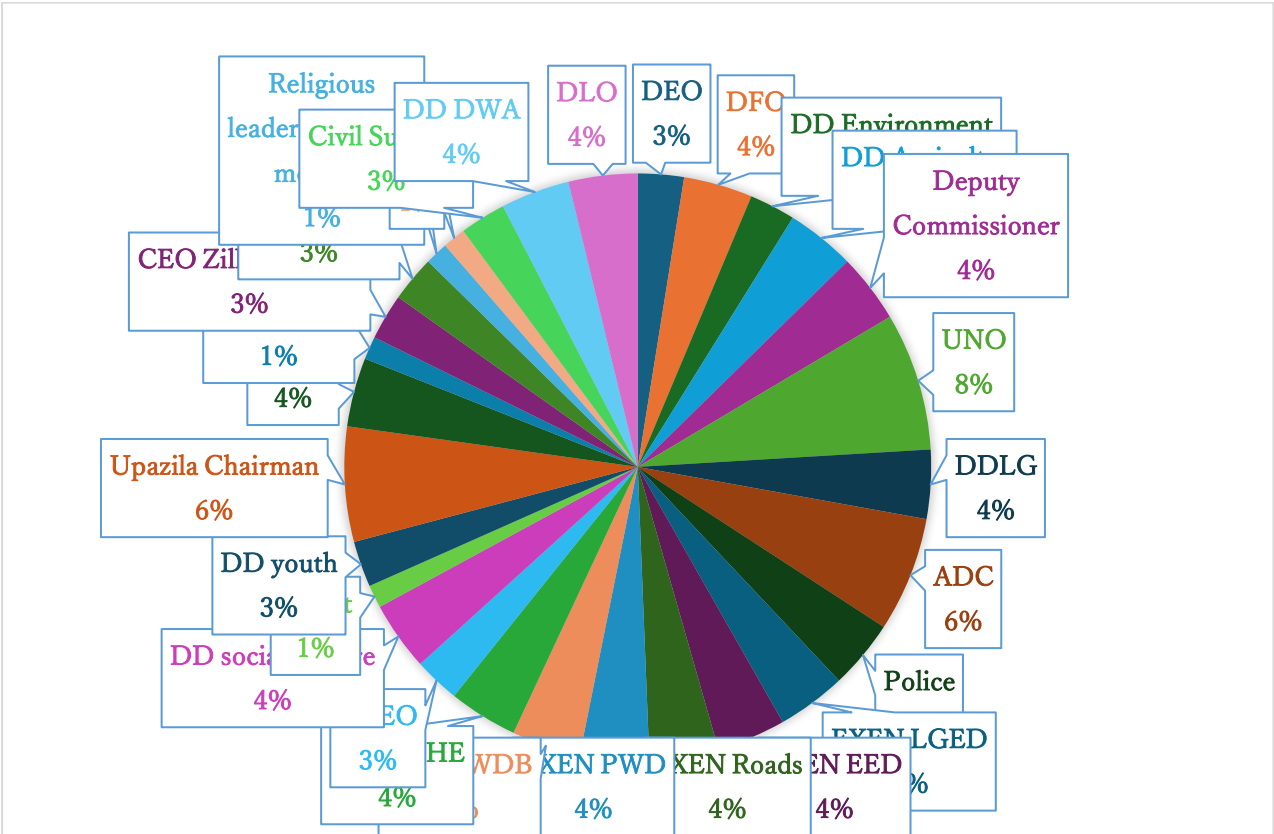
Figure 22: Survey respondents' profile



The figure shows that 80.5 respondents are male, and 19.5% of respondents are female.

DDCC members are from various professions and services. It is important to include people from all spheres of services and professions. Figure 23 shows the diversification of the respondents.

Figure 23: Diversification of the respondents



The figure shows that the highest percentage (8%) of participants are from UNOs and then the Upazila Chairman (6%). Data have been collected from 29 diversified professions.

In this study, no people were selected with less than three years of experience in service. An experienced officer has a better insight and understanding of the underlying and hidden issues of DDCC. The length of the service of the survey respondents is presented in Figure 24.

Figure 24: Length of the service of survey respondents

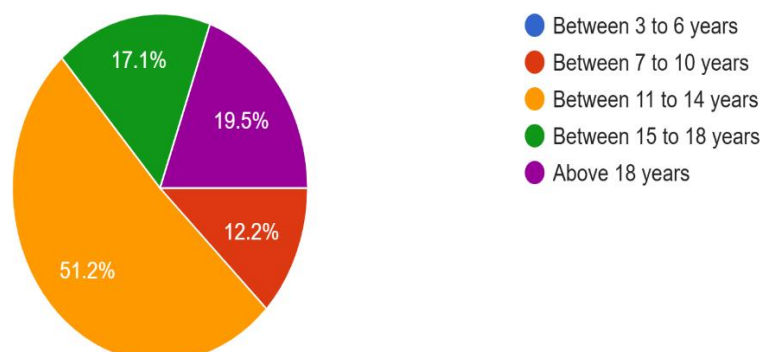
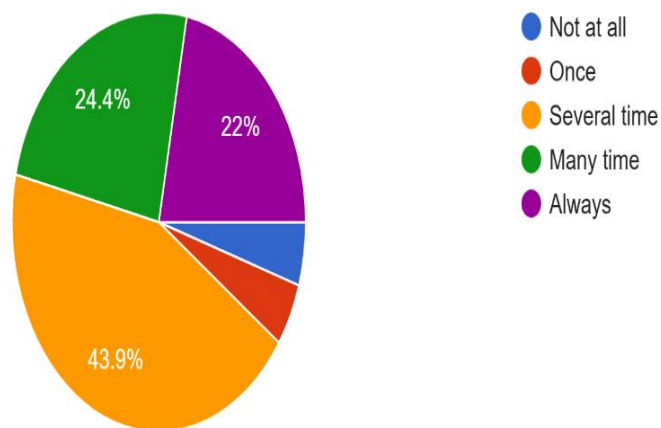


Figure 24 shows that more than 51% of respondents have 11 to 14 years of experience in service. The second largest group, with over 18 years of service experience, is 19%. Data shows that 17 % of people have 15 to 18 % and 12 % have 7 to 10 years of service experience. Interestingly, no one in service for 3 to 6 years has responded, though some of them have been sent invitations. Only the government officers of DDCC were considered in this figure. Because other members' positions are temporary. For instance, an Upazila Chairman is elected only for 5 years.

4.9.2 Data presentation and analysis

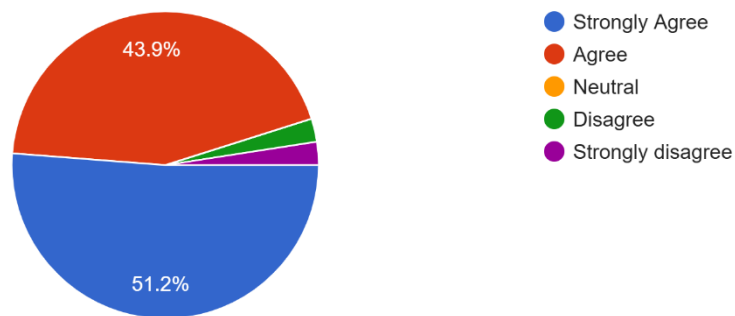
The primary function of DDCC is development coordination. Hence, a question was asked in the survey, "How many times have you observed or participated in a discussion on development project issues in DDCC?" The question was closed-ended. The figure below presents the responses of the respondents (Figure 25).

Figure 25: Frequency of development project discussion in DDCC meetings.



The above figure shows that 5% of respondents have never seen any discussion on development project implementation, and 5% have heard only once. Nearly 25% of people have seen development project discussions in meetings often. Data shows that 22% have always seen discussions on development projects in meetings, and a significant portion (44%) have observed discussions on development projects several times. However, the data analysis provides evidence that the issues of development projects are not always discussed in the meeting. Another question regarding the importance of inter-organizational coordination in development project implementation has been asked. The question was, "Lack of inter-organizational coordination at the field level makes an adverse impact on project implementation. What is your view regarding this statement? This is also a closed-ended question. The responses are shown in the figure below (Figure 26).

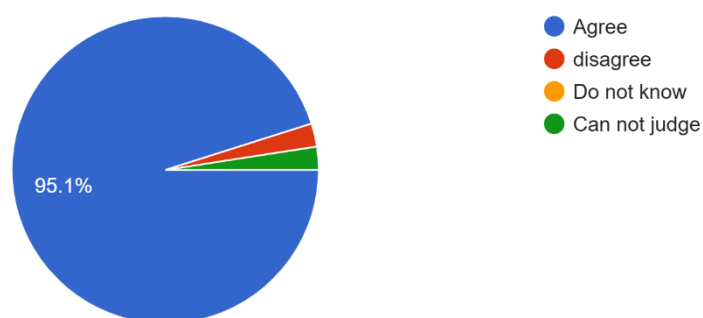
Figure 26: Respondents' statement regarding the adverse impact of lack of inter-organizational coordination on development project.



51% of respondents strongly agreed, and 43.5% agreed with the statement. Data shows that 2% of people disagree, and 2% strongly disagree with the statement. In the data analysis, more than 95% of respondents believe that a lack of inter-organizational coordination at the district level can adversely impact development project implementation.

The next question was asked regarding the ability of DDCC to reduce the gap in inter-organizational coordination. The statement was, “DDCC can play a vital role to improve coordination in field level.” Here are the replies in Figure 27.

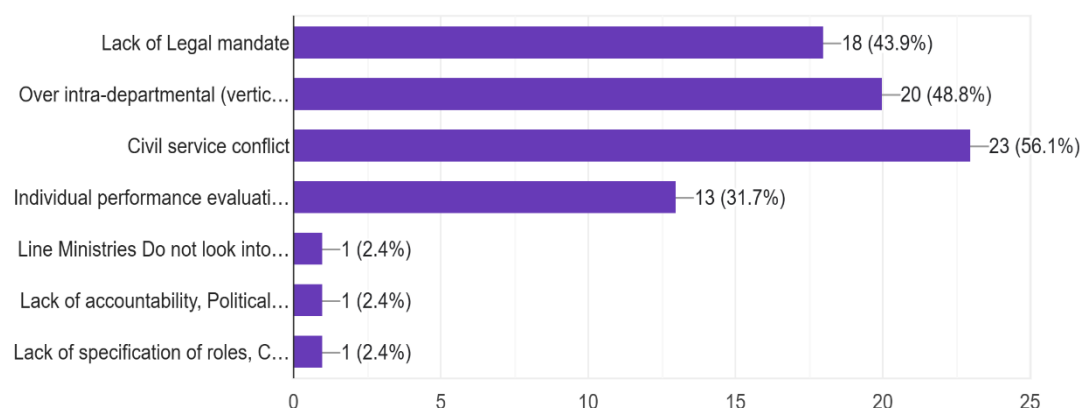
Figure 27: Respondents’ statement regarding the capability of DDCC to improve coordination.



Data shows that more than 95% of respondents believe DDCC can play a vital role in improving inter-organizational coordination at the field level. In the conceptual framework based on the literature review (Figure 8), it has been shown that several factors adversely affect the inter-organizational coordination of

DDCC. These variables are Lack of legal mandate, intra-departmental (vertical) control (siloization), civil service conflict, and individual performance evaluation by each department. A question was asked to check the variables and to find new factors. An option was also given to write their own views. The question was, “Which is/are the most influential factor(s) hindering DDCC to work effectively in terms of the development project?” The respondents can select more than one, and they can write more in the ‘other option’. The responses are shown in the below figure (Figure 28).

Figure 28: Factors hindering DDCC to work effectively.

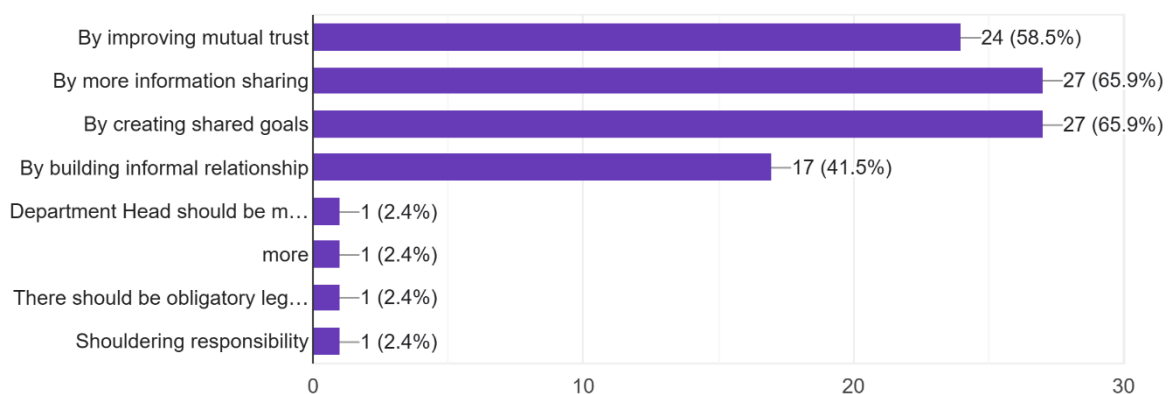


The above figure shows that civil service conflict is the most crucial factor hindering inter-organizational coordination. Silo syndrome is the second largest obstacle, and the Lack of a legal mandate is the third. Individual performance evaluation has been placed in fourth position. However, the respondents raised a few new factors. These are Lack of accountability, political influence, Lack of action plan, Lack of specific rules, and Lack of communication and skill. The Lack of a legal mandate can accommodate all these factors. However, the responses to these factors are also insignificant compared to those four variables.

In the conceptual framework (Figure 8), some variables positively influence inter-organizational coordination. These are achieved by improving mutual trust,

more information sharing, creating shared goals, and building informal relationships. A question was asked in the survey to check these variables. The question was, “Among the criteria mentioned below, in which way(s) DDCC can be made more effective?” The opportunity was given so that the respondents could select more than one, and they could write more in the "other option."

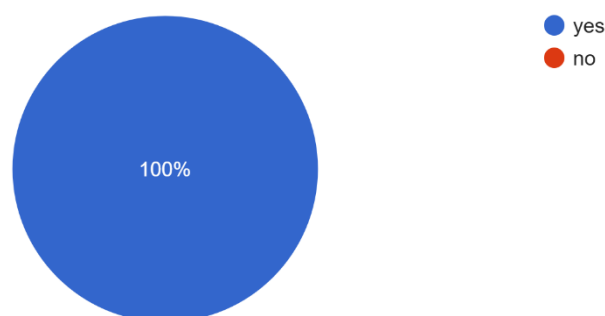
Figure 29: Factors positively influencing DDCC to work more effectively



Data shows that both creating shared goals, and more information sharing are the most effective ways to build relationships in the field. 65.9% believe DDCC will be more effective if the members practice these two. 58.5% of people keep trust in the variable by improving mutual trust. Informal relationships (41.5%) is the least among these four. However, the respondents raised a few factors. These are obligatory legal mandates, shouldering responsibility, and responsibility and accountability of the departmental head. All these issues are related to legal mandates, which have been addressed in the variable 'Lack of legal mandates.' Nonetheless, the new responses are significantly insignificant compared to the other four variables.

Then, there was a question in the survey: "Is there any further scope to strengthen DDCC?" The responses are in the figure (Figure 30).

Figure 30: Participants' statement whether there is further scope to strengthen DDCC.



Everybody believes that there are further scopes to strengthen DDCC.

The survey asked open-ended questions based on the two research questions. The two research questions are:

- 1) What are the factors affecting inter-organizational development coordination at the district level in Bangladesh?
- 2) What are the coordination challenges between DDCC and the line ministry in the implementation of development projects?

All the survey questions (Annex 3) were selected based on the research questions. The highlights of the responses to the open-ended questions, along with coding, are presented below.

Table 5: Survey with DDCC participants

Responses of Survey	Code
“DDCC is directly supervised by the Cabinet Division, which is the highest guiding authority for all the field-level departments. So, they should provide clear guidelines and instructions to DDCC, all the ministries, and their field-level departments so that they can follow those guidelines without	Guideline

any failure. In case of any violation, legal action should be taken against them.”	
“It has a great potential. But we all need to change our attitude and focus on our country's development rather than our individual priorities.”	Collective action
“Everyone should maintain protocol and address according to grade, not considering the organization.”	Service decorum
“Line Ministries of the departments/directorates should instruct Participants/members of the DDCC to comply with the decisions taken in the meeting.”	Vertical instruction
“Local-level development planning should be done/coordinated at the DDCC level, which should complement the national development planning.”	Local planning
“Improving good relationships by avoiding power exercises to each other.”	Bond over authority
“It goes without saying that the DDCC only plays the formalities in directing the meeting. However, as the DDCC is the highest authority in the district, it can take strong steps to implement all the decisions following the rules and regulations. DDCC should take the right steps to implement decisions made by the local standing committee.”	Legal action
“Not only the works of other departments but also the works of the DC office should be discussed in the meeting.”	Dividation
“The deputy commissioner should be empowered with financial and legal mandates to distribute the budget and coordinate and monitor the development projects.”	Empowering DC
“Guardianship to other organizations, such kind of mentality of DC should be avoided.”	Conflict

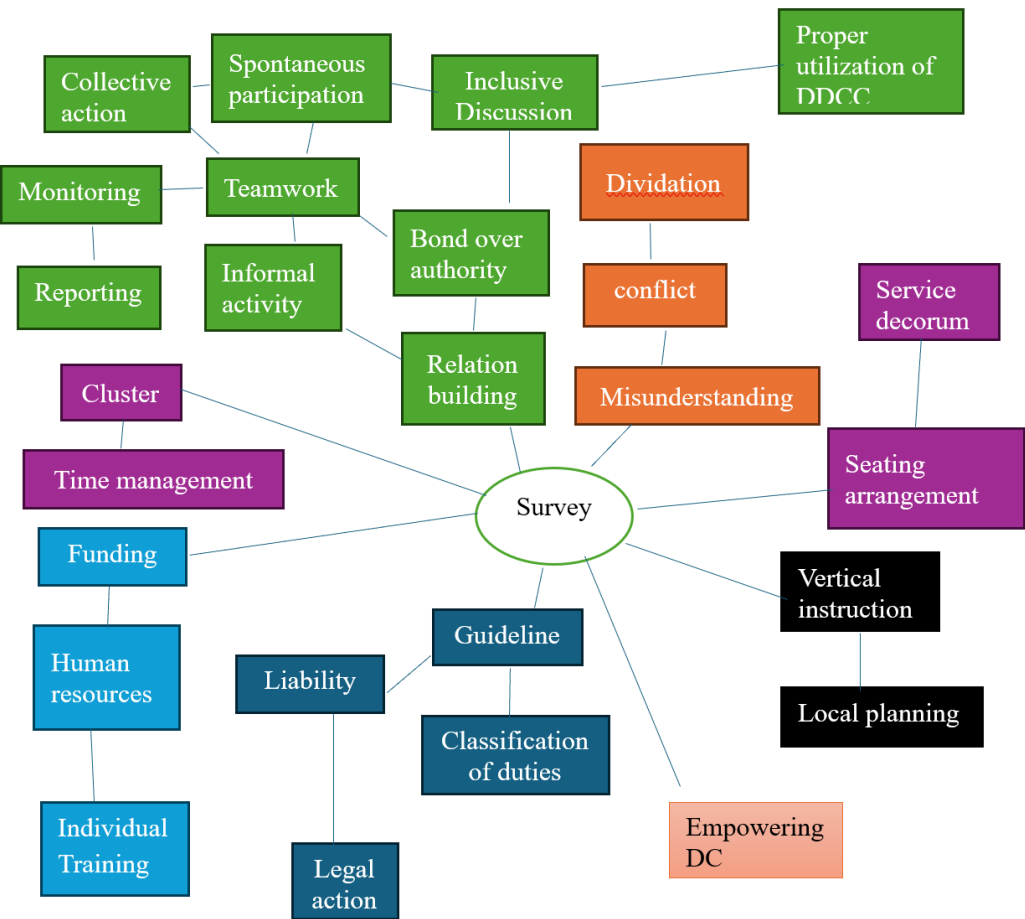
“The district administration often fails to arrange proper seating for DDCC meetings in many DC offices. As a result, senior district officers may not receive appropriate seating, leading to feelings of embarrassment or frustration. This Lack of organization can negatively impact the effectiveness of the meeting.”	Seating arrangement
“Department-wise, all development project details should be presented in the meeting.”	Inclusive discussion
“Submission of a DDCC meeting report to IMED after completion of the project.”	Reporting
“DDCC can be more effective by improving relations between different organizations. It is the right platform to solve problems.”	Relation building
“Active and efficient participation of all offices is desirable. Improve the highest level of coordination among the officers. Try to serve general people for their best and take prompt action to mitigate any kind of problems that people face.”	Spontaneous participation
“Taking DDCC's opinion before approval, if the project is only for that specific district, monitoring the projects through sub-committee/technical committee.”	Proper utilization of DDCC
“Departments should regard it as a forum of a district level coordination, not a meeting of DC. Because it's a suitable place where government organizations, local govt bodies, journalists, and people's representatives are available to discuss district-level issues.”	Misunderstanding
“We should go together. No one should fall behind.”	Teamwork

“Proper charter of duties for every department. Who will do what? Accountability regarding non-cooperation should be ensured.”	Classification of duties
“Time management should be maintained during the meeting, and discussion should be project-based development. No other meetings should be held on that day—the general discussion should be held separately.”	Time management
“The leadership Capacity of the Chair of the DDCC Committee should be strengthened through special training.”	Individual Training
“Generally, The Deputy Commissioner is the Chair of DDCC. An additional ADC with supporting officers and staff should be assigned/appointed to organize, manage, assist in conducting the meeting. This team should be empowered by a distinguished ToR and authority. The ADC (Development and Human Resource Management) should be strengthened in capacity with skills by specific training and tasks.”	Human resources
“The project fund needs to come through DC, and projects can be approved by this meeting. Unnecessary and duplicate projects can be removed and save government resources.”	Funding
“The departments should be made liable for not disclosing their budgetary allocations. They should be made accountable for putting forth all their projects on board of the meeting.”	Liability
“IMED can occasionally attend meetings with their representatives.”	Monitoring
“DDCC meetings should be held sector-wise. (Between similar nature department or relevant department) To continue the meeting for 2/3 days. To discuss a maximum of 10/15 departments within a day.”	Cluster

“Informal relationship building can be done in different ways, like sports or annual picnics.”	Informal activity

After generating initial codes from the survey data, similar codes were grouped and given the same color. Then, the color-coded data are mapped out to find themes. The thematic map of the color-coded survey data is shown in the figure below (Figure 31).

Figure 31: Thematic map for color-coded survey data (Made by the author)



A separate semi-structured questionnaire was prepared for the in-depth interviews. Below are the highlights of the responses, along with coding.

Table 6: Interview with DDCC members

Interview with DDCC members	Code
"We do not want to share information in any other places except where we are bound to do so. We only follow our own department's direction."	Hierarchy
"The main problem is the Lack of information sharing. This could not be done at the ministry level. It could be done at the sub-district level, and DDCC can monitor it. If they shared information, then no duplication."	Information Sharing
If my words go against elected political people or influencing officers, then there will be a problem. That's why meetings are not spontaneous or sporting sometimes. Because we cannot speak from our heart.	Unseen Pressure
The project is being undertaken mainly with the influence of heavyweight people. In most cases, at the district level, we hear that there might be a project here. We only know when the project is passed through ECNEC.	Field avoidance
"There should be a legal binding to share the information. If anyone does not share information with other officers, then we will not be able to go to the next step."	Law enforcement
"DC has no technical knowledge. But he also makes decisions on technical matters. But how?"	Generalist specialist conflict
"If I want to raise any problem in the meeting. I find that in the end, I become liable and victim."	Wariness
"Some officers do not get promoted in time. They become reluctant to participate spontaneously in the meeting. Because other officers are junior to them."	Inferior complexity
"Some officers are enjoying luxurious cars and facilities. Other officers are deprived."	Discrimination

“DC must own the meeting. Otherwise, the meeting will not be fruitful. Some DCs talk alone. The meeting is finished within 30 minutes. Other officers also become happy because the meeting ends early.”	Ownership
“The meeting always starts with the same serial. Sometimes, meetings must start from the middle serial of the department and sometimes from the last number.”	Meeting procedure
"During the flood, I raised the issue of fishermen whose fish enclosures were flooded. They were benefitted from DDCC's discussion."	Positive outcome
“In ACR, we have a 'marking system' for the project implementation. Now we are in competition. I have to finish my job whether people are getting benefits or not. We also do not consider if we hamper any other department's work.”	Performance evaluation
“We seek the help of DDCC to tell the Forest Department to help us. But we do not consider whether the forest department will be hampered by this activity or not.”	Selfishness
"Now, most of the department has an engineering wing. One department is doing the work of another department."	Overlapping
We were building a bridge on the canal. BADC was excavating the canal at that moment. I mentioned this issue in the meeting. Then DC said that both of you are doing work on the canal. But I am the owner of the canal. None of you communicated with me earlier. We became embarrassed at the meeting.	Uncomfortable situation
“The meeting will not be fruitful unless its decisions are not implemented. The system is like a chain. If it is interrupted anywhere, it will not function well. We are not practicing well, so coordination is not working well.”	Practical application

“When the Ministry takes any project, they do not consult with us often. They have a database. They make the decision based on their data.”	Top management
“Problems of DC office. I do not face any problems. I got benefits from DDCC. If I can make understand DC, then the problem will be solved.”	Communication
“DC is not a ruling authority. It is the rule of law, not the rule of a person.”	Dominance
To implement development projects, a stable law and order situation is necessary. When the law-and-order situation deteriorates, we need the help of the police. If the DC tells this matter to the SP (Superintendent of police) in the meeting, it becomes more fruitful.	Trust on DC
"Infrastructure development-making departments are getting more priorities than human development."	Prejudice
“There is no uniformity among the DCs. Everyone has his own style.”	Dissimilarity
“Sometimes, one department takes more than half an hour to discuss, whereas another department does not have any scope to talk. After one hour of discussion, everybody thinks when the meeting will be finished.”	Boring environment
“The same roads are being excavated by BTCL, WASA, City Corporation, and PDB by turns for their own development work. If they did it at the same time, the cost would have been minimized.”	No cooperation
“Elected political people determine in which school the infrastructure development work will be done. They just only get consent from the headmaster or principal.”	Nepotism

“Ministry is providing training to doctors, family planning officers, and upazila women officers who are already experts in child and woman health issues.”	Resource wastage
“An NGO, selected by the central Ministry, provides training for VGD beneficiaries in Cumilla. The Ministry has selected the NGO from the Tangail district. This NGO has no set up in Cumilla. They have to rent an office. They do not properly provide training. In the end, they failed. Targeted people do not get proper benefits. But this NGO selection could have been done by DDCC at the field level.”	Bypassing district
Training should be provided for all. Not only the BCS officers but all the members need training.	Training
“Several departments do the same job of tubewell installation, such as public health, LGED (Upazila Parishad), Zilla Parishad, and Municipality. Every department wants to do and show that they are working.”	Self-interest
"Canal is 20 feet, but the bridge is 15 feet."	Wrong design
“I give high importance to this meeting. This is the highest tool a district uses to make a decision.”	Faith
“If the coordination is good, then 25 to 30 percent of money will be saved.”	Benefit of coordination
“During the time of Covid 19, the Brahmanbaria district was lagging behind in the vaccination program. People were highly reluctant to get vaccines for superstitious beliefs. The district civil surgeon raised the issue during the DDCC meeting. After that, everybody came forward and took ownership of the issue. Finally, this district ranked second in the country in the vaccination program.”	Collaboration

“Within a very short time of the meeting, it is impossible to discuss all the district's issues. We, implementing agencies, are getting less time in the meeting.”	Limited time frame
“DC asks something to an officer. The officer replies, and DC listens. DC does not like other officers to talk and also give suggestions.”	Negative perception
“In Bangladesh, the health department provides the BCG (Bacillus Calmette-Guérin) vaccine right after birth. At the same time, a birth certificate is provided by the Local Government Division. People are concerned about BCG but are reluctant to register for birth. The Health Department directs the people to bring the birth certificate before the next vaccination dose.”	Cooperation
“There is an officer's club in every district. We can utilize it.”	Resource mobilization
“Political people are there in the meeting. Sometimes, they create illegal pressure on us. We cannot reveal it in the meeting. Because we are afraid of them. We have to tell DC about it personally.”	Personal relationship

In this study, one additional secretary from MOPA and one joint secretary from the Cabinet Division were also interviewed. Their responses are highlighted below, along with coding.

Table 7: Interview with the members of the central Ministries

Interview with Ministry representatives	Code
“We have a collective barrier, and we are driven by certain values that we are superior. I have to ensure the superiority of	Superior Complexity

my service. Rather than delivering the actual service to the people.”	
“Another barrier is the organizational culture and path dependency. So, everyone follows the precedence.”	Path Dependency
"Nobody wants to be humiliated publicly."	Personal protection
“Co-creation must be prioritized”	Co-creation
"Other offices know that the DC office is connected to higher offices like MOPA and Cabinet Division. So, they cannot ignore the meeting. But at the same time, at the back of their mind, they also know that it's not going to affect their work procedure, culture, and decision-making. Because they are accountable to their higher line authority."	Ritualistic presence
"There is no analysis on DDCC meeting minutes in the Cabinet Division, and the DDCC members know it."	Less value generating
"Other officers attend the meeting but receive direction from the line department."	Routine participation
"When I was UNO, I also wanted to escape the meeting. The discussion is the same every time."	Monotonous
"Participants do not get the impact in the next meeting."	Negative impact
Now, project culture is like creating economic rent: the more projects, the more financial benefits.	Rent seeking
“When the governance is not fair, coordination does not work.	Demotivated coordination
“It is the rent which creates duplication of projects and irrelevant projects.”	Bribery
"Good coordination can prevent corruption. Around 50% of corruption in project management will disappear if DDCC can truly manage the inter-organizational coordination."	Potentiality of DDCC

There is a lack of political and bureaucratic incentives in the country. As a result, the Cabinet Division does not regularly monitor the function of DDCC.	Incentive
"There is no policy predictability. Because politicians and high-level bureaucrats interfere everywhere."	Favoritism
"In this context, we have to emphasize the pocket of effectiveness as other options are not working."	Pocket of effectiveness

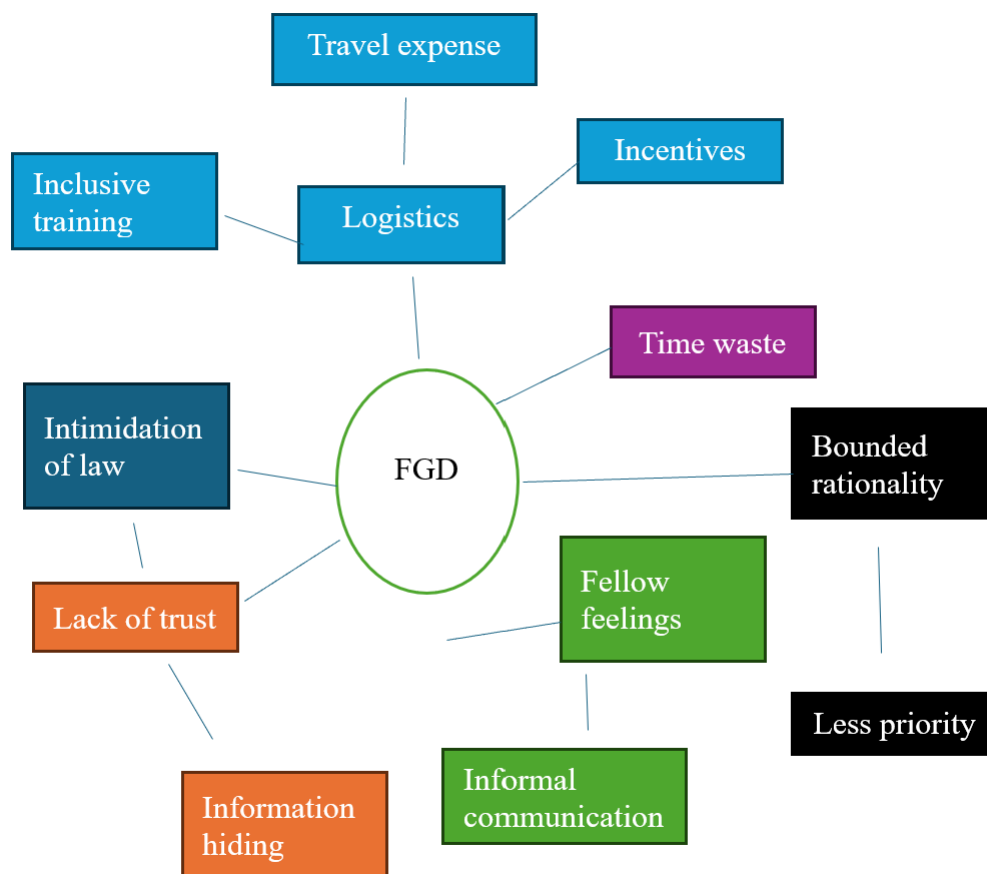
After generating initial codes from the in-depth interview transcript data, the similar codes were grouped and given the same color. Then, the color-coded data are mapped out to find out themes. The thematic map of the color-coded in-depth data is shown in the figure below (Figure 32).

Figure 32: Thematic map for color-coded in-depth interview data (Made by the author)

“In our upazila, we arranged a picnic and invited all the district officers. They visited our upazila. They have committed to giving special attention to our upazila in the future.”	Informal communication
Engineers from Dhaka conducted a feasibility study. They do not know the area and sometimes fail to depict the actual situation.	Bounded rationality
“Who starts first in the meeting, he has to wait for two hours more in the meeting. Because he has no more agenda. Time is valuable for us (Upazila Chairman). We, Upazila Chairmen, have to give time to the local people.”	Time waste
“We are representative of the common people. Most of the time, we do not know where the project will be implemented. District officers do not tell it in the meeting.”	Information hiding
“Implementing agencies inform us at the eleventh hour of a problem. When they see they are unable to implement, they seek our help.”	Lack of trust
“LGED wants to make bridges without acquiring the land. They seek our help. But we cannot go against our people.”	Fellow feelings
"Whenever we speak in favor of the people, the Government officers show rules and regulation."	Intimidation of law
“Some financial matters might create some extra benefit. Sometimes honorarium can be awarded to the participating members to get some fruitful insights from the members.”	Incentives
“Upazila Parishad monthly meeting minutes are not getting enough importance in DDCC meeting.”	Less priority
"Training should be given to all government officers and political leaders."	Inclusive training
"The district headquarters is far away from us. We have to travel 60 km to get there from Upazila. Sometimes UNO and I share the same car to reduce cost."	Travel expense

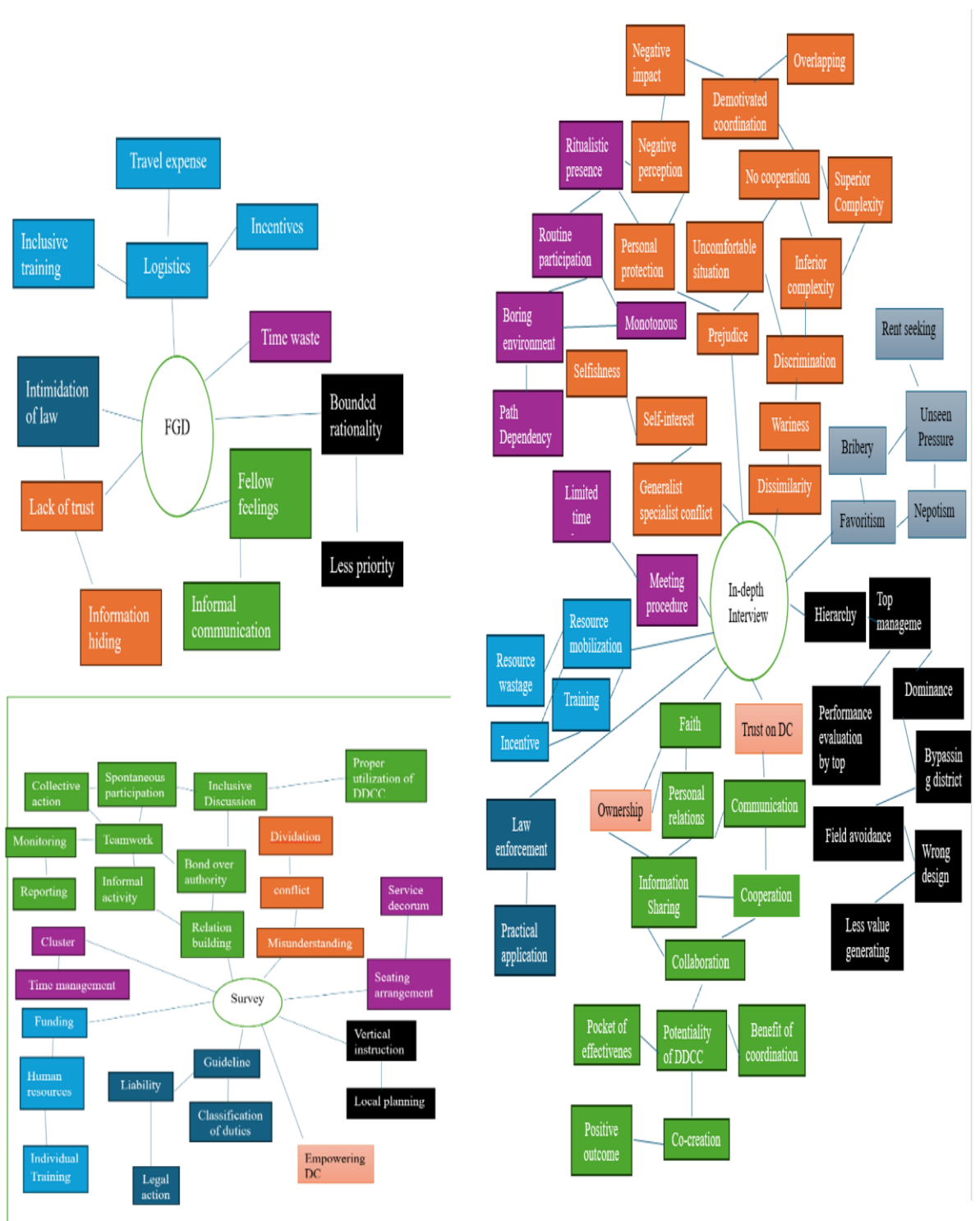
After generating initial codes from the FGD transcript data, the similar codes were grouped and given the same color. Then, the color-coded data are mapped out to find out themes. The thematic map of the color-coded FGD data is shown in the figure below (Figure 33).

Figure 33: Thematic map of color-coded FGD data (Made by the author)



After that, based on all the coded data (Survey, in-depth interview, and FGD) a thematic map (Figure 34) is drawn to find out and name the themes. The emerging themes are shown in Table 9.

Figure 34: Thematic map of color-coded (in-depth interview, survey, and FGD) data (Made by the author)



In the figure above, all the codes for the survey, in-depth interview, and FGD are depicted in one frame. The visual representation of the thematic map has been drawn to categorize and sort out the diverse codes into possible themes. After reviewing and recognizing the spirit of the themes, the author has given the names of the themes. The same color codes have the same logical pattern in Figure 34. The color grouping of the themes in Table 9 emerges from the color combination of Figure 34.

The orange color codes have the same essence as 'conflict,' whereas the green color codes bear the image of 'harmony.' The combination of these color codes designs the theme 'conflict versus harmony.' In in-depth interviews and surveys, nearly half of the codes are orange and green. The ratio is comparatively lower in FGD. Three graphical presentations below depict the picture.

Figure 35: Color code percentage in the in-depth interview (Made by author)

Figure 36: Color code percentage in the survey (Made by author)

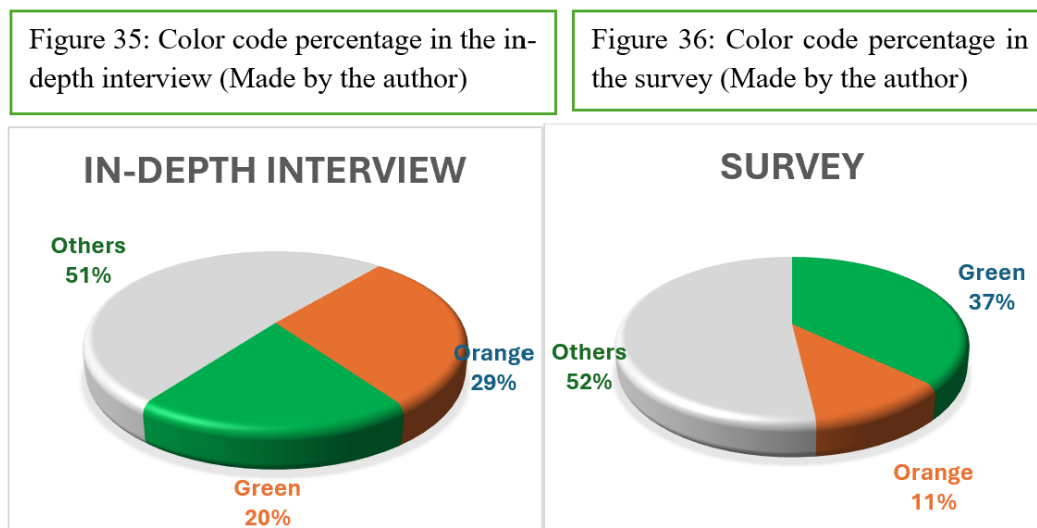
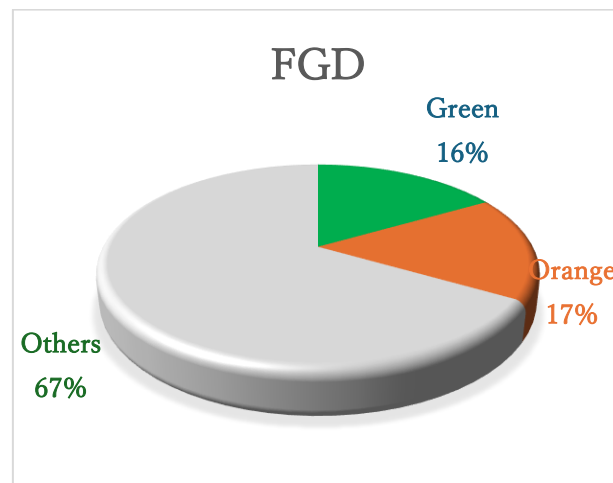


Figure 37: color code percentage in FGD (Made by the author)



On the other hand, in both FGD and in-depth interviews, there is no significant difference in the proportion of orange and green color codes. But in the survey, the percentage of green color codes is more than triple compared to the orange color codes.

All the dark blue color codes have similar patterns and have the spirit of law-related issues. The plum color codes resemble the 'framework' of the DDCC meeting related to 'guidelines.' Hence, the 'guideline and framework' theme emerged from these two colors. In in-depth interviews, plum color codes are more compared than in FGD and survey and dark blue color codes are more common in the survey than in in-depth interviews and FGD.

Figure 38: Comparison of plum color codes (Made by the author)

Figure 39: Comparison of dark blue color codes (Made by the author)

Figure 38: Comparison of plum color codes (Made by the author)

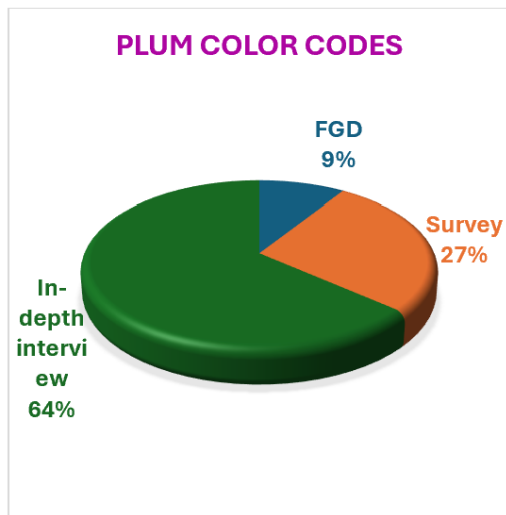
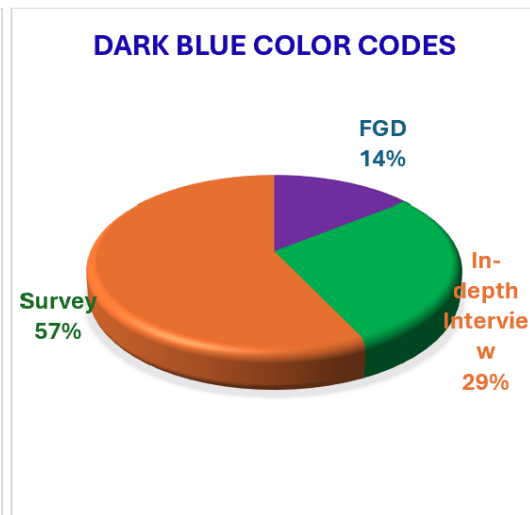
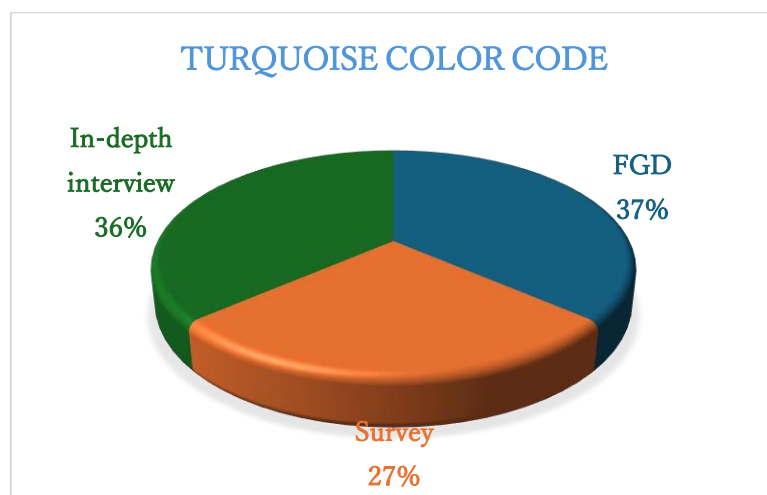


Figure 39: Comparison of dark blue color codes (Made by the author)



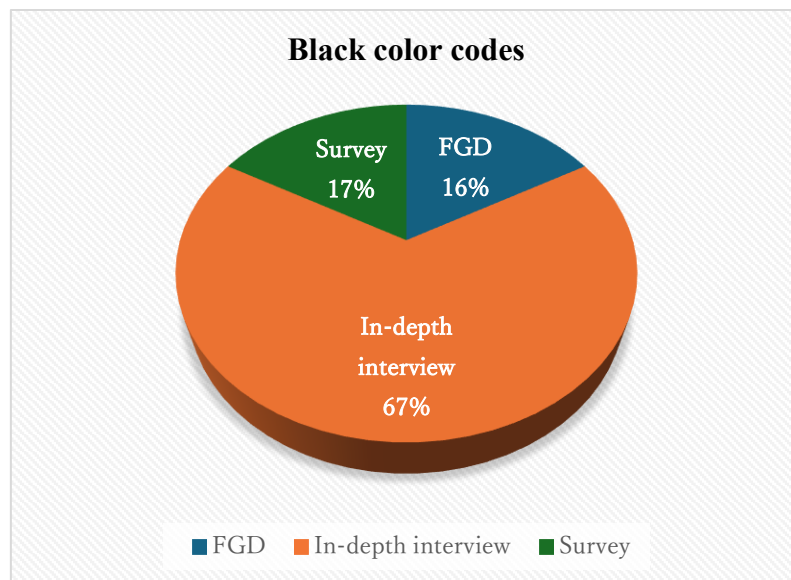
Turquoise color codes are categorized into the essence of 'facilities of DDCC.' Interestingly, the number of turquoise color codes is almost the same in the FGD (4), survey (3), and in-depth interview (4), though the internal ratio is different.

Figure 40: Comparison of turquoise color codes in survey, in-depth interview, and FGD (Made by the Author)



Black color codes stand for 'silo syndrome.' In in-depth interviews, black color codes are more in number than in FGD and survey, while the number is the same in FGD and survey. The ratio is depicted in the figure below:

Figure 41: Comparison of black color codes in survey, in-depth interview, and FGD



Among the other two colors, light orange is for 'leadership,' and grey is for 'corruption.' However, different scenarios have been seen in the case of light orange and grey colors. There are no light orange color codes in the FGD. On the other hand, grey color codes are only available in the in-depth interview. The reasons are explained in the next chapter.

However, the themes emerging from the thematic color-coded map (Figure 34) are shown in table 9 below. The same colors of the thematic maps are also reflected here.

Table 9: Themes

Theme	Brief description
Conflict versus harmony	There are some factors which create conflict among the members of DDCC. On the other hand, there are some issues which create harmony among the members.
Guideline and framework	Some factors related to rules and regulation of the DDCC and the meeting framework of how it should be conducted.
Facility	This includes the factors regarding resources, logistics, and capacity development opportunities for the members of DDCC.
Leadership	Factors related to the behavioural aspect of the Deputy Commissioner (DC) who is the president of the committee,
Silo syndrome	Factors connected to the silo behaviour of the DDCC members which is controlled by the top.
Corruption	Factors related to the illegal means of development projects affecting both inter-organizational coordination of DDCC and vertical relationship with line ministries.

CHAPTER FIVE: DISSCUSSION

5.1. Introduction

This chapter reviews the themes which emerged in the previous chapter: conflict versus harmony, guideline and framework, facility, leadership, silo syndrome, and corruption. To keep the privacy of the participants, their gender is unspecified in the discussions.

5.2. Conflict versus harmony

In the survey response, 56.1% of respondents believe civil service conflict is the biggest perpetrator hindering inter-organizational coordination in DDCC. In in-depth interviews, participants also claim that conflict impedes coordination. Behind such conflicts are several factors depicted by participants in both in-depth interviews and in the open-ended questions of survey responses. A civil service officer (technical) has a view that the Chair of the meeting (DC) exercises unwanted authority over them:

DC's approach is like a master, and we are slaves. In the meeting, he questions us (the infrastructure project implementing department) authoritatively rather than facilitating the meeting. Because of his attitude, we sometimes avoid sharing information in the meeting. Moreover, we cannot participate wholeheartedly in the meeting.

Some technical officers also claim that DC has no technical knowledge. He does not understand the dynamics of the projects. In the end, the meeting was not fruitful.

Generalists have stated the opposite view. It is not necessary for a person to be a technical officer to understand project dynamics. Generalists claim that the specialists (Technical) want to hide the information to avoid accountability. In the name of service conflict, they are escaping from the liability in the meeting. A non-technical officer says:

Project implementing departments do not want to share the information regarding projects. There are some ambiguities in the systems. They do not

want to let other people know. If they share, they will be held accountable in this meeting. But they consider it an extra burden.

Moreover, some officers reported in the survey that they were denied due respect in the meeting. Though they are seniors, they are not getting enough attention. They claim that the people from the administration enjoy more opportunities than they do. These create inferior complexities among them. On the other hand, the administration people believe they are doing more work than any other department in the district. They have to work even after the usual office hours. This is the nature of their job. Considering the extra labor, the government has given some logistics support to them, which other departments count as an additional benefit.

A participant from the administration pointed out that in the civil service exam, most of the candidates' first choice is the BCS (administration). As a result, officers from the administration consider themselves meritorious. "As they (administration) think themselves meritorious and enjoy more amenities, they are suffering from superior complexity," a technical officer claimed. However, people in administration directly disregarded this view. They say that the government has entrusted them with multiple tasks. One of the tasks is to arrange this meeting, which others consider a tool to dominate them. But there should be somebody to organize and coordinate the meeting. This is a regular job that technical officers cannot tolerate because of jealousy.

An engineer claims that most technical officers are from engineering, medical, and agricultural backgrounds and are considered brilliant students. But general officers, including administrations, are from diverse backgrounds. This issue of demanding superior brilliancy creates complications among the officers.

Another type of conflict is the interdepartmental conflict for self-interest. An Executive Engineer of PWD (Public Works Department) explains:

The food department wanted to make a new silo. They built it by themselves without consulting with us (PWD). However, when they wanted to demolish

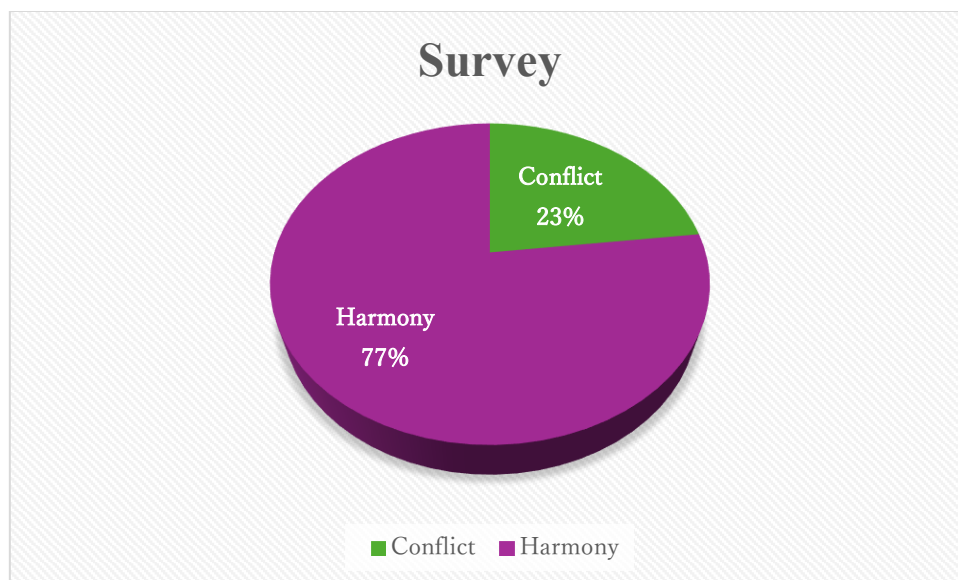
the old one, which was hazardous and non-profitable, they sought the help of the PWD. We denied doing it.

There are also conflicts between political leaders and officers. Political leaders claim that the officers are reluctant to collaborate with them. Some officers opine that political leaders always put pressure on them.

All types of conflicts affect the coordination of the DDCC. Due to these conflicts, there is a lack of information sharing in the meeting.

Nonetheless, despite these complex conflicts, it is also possible to make DDCC a successful platform for inter-organizational coordination at the district level. In the survey, 58.5% of respondents believe that by improving mutual trust, and 41.5% of respondents think that by building informal relationships, they can overcome those difficulties. In the survey, respondents talked more about harmony than conflict, which is displayed in the figure below. It signifies that harmony can subdue conflict if it is nurtured.

Figure 42: Ratio of conflict versus harmony in survey.



It has been pointed out by the interviewees of in-depth interviews and FGD that through personal relations, mutual respect, fellow feelings, informal activity, and informal communication, they can create trust among themselves. It will

influence the building of teamwork, cooperation, collaboration, and spontaneous participation in the meeting. Activities of the officers' club, residential training, picnics, cultural events, annual sports, and workshops can work as catalysts to build relationships apart from the general guidelines and formal activities of the DDCC members.

In FGD, an Upazila Parishad Chairman says he frequently invites the district officers to his Upazila to maintain a good relationship. Another Chairman adds that he arranges a district picnic in his upazila to maintain harmonious relationships.

The implementation of the development projects will be smooth, and people will benefit if only the DDCC becomes successful. The participants of the FGD believe that a harmonious relationship can overcome the conflicts.

However, the respondents in the survey and in in-depth interviews reacted differently to conflict and harmony. In in-depth interviews, interviewees frequently referred to conflicting issues for less coordination, whereas in the survey, respondents focused more on harmony for better coordination. To some extent, the survey failed to drag out the underlying issues of conflict. On the other hand, in in-depth interviews, participants spoke from their hurt. There might be two reasons why people felt more confident in interviews than in surveys talking about conflicts. One is that the survey was done in written form. They might be afraid to provide written statements regarding conflicting issues. Secondly, in an in-depth interview, the author was able to make them trust him. In FGD, the ratio of conflict and harmony is the same.

5.3. Guideline and framework

43.9% of survey respondents believe that due to the lack of legal issues, DDCC is not properly working. They state that the Cabinet Division has formed the DDCC and directed the Deputy Commissioner (DC) to arrange and conduct the meeting. They attend the meeting based on the notice from the DC office. One of the participants (Human development side) in the in-depth interview said:

We do not know what to do in the meeting. We attended the meeting to show that we are present. There is no specific Terms of Reference (ToR) for us.

An Additional Deputy Commissioner (ADC) also echoed the same idea but in a different way. He also believes there is a lack of proper guidelines for the project implementation departments. They should be bound to share project-related information during the meeting. He provides an example:

A school building was built by the District Education Engineering Department (EED). The building was handed over to the district's education department. But they could not use it. Because the wash block (sanitation facilities) was not built. The District Education Officer raised this issue in the DDCC meeting. The EED replied that building a wash block is the duty of Department of Public Health Engineering Department (DPHE). But the DPHE countered that they had no information about such a school building. They should have been informed earlier. The EED blamed the District Education Department for not sharing the information. However, the Education Department responded that they were unaware that the wash block would be built by another department. They blamed each other, but the victims were the students.

ADC states that any department could have shared the information. Each department should have been punished for such mistakes. But there is a lack of proper guidelines and regulations. In the end, holding any department liable was impossible due to a lack of rules and regulations.

An engineer from PHD asserts that various departments are doing similar work. Excavation of canals is an example. LGED, Agriculture Department, Water Development Board, Municipalities, City Corporation, Upazila Parishad, and Zilla Parishad are excavating the canals. There are no appropriate guidelines. Every department wants to do and show that they are working, neglecting the negative consequences. He suggested a separate charter of duties for every department. An

Upazila Chairman in FGD adds that no action can be taken against them for duplicating due to the law's flaws.

On the other hand, many participants had questions about the framework of the meeting. A high official from the ministry said that the meeting procedure is flawed, monotonous, and boring. He also tried to escape the meeting when he was UNO. There is no uniformity in time management. Several departments are getting priority, and some do not have the scope to talk. A participant from the social welfare department states that his department is always being neglected. He identifies two problems. Firstly, departments related to human development are less prioritized than those related to infrastructure development. Secondly, departments with non-cadre⁴² officers are ranked at the bottom of the meeting's working paper series. Most of the officers who are involved in human and social development reflected the same ideas. However, both the departments (infrastructure and human development) officers suggested a cluster-based meeting.

Several participants said that the length of the meeting should be increased. Because it is not possible to discuss all the issues within a short time frame. On the other hand, some officers stated that the meeting becomes boring after one hour. It should not be so long. They cannot concentrate for a long time. Both of these groups also suggested a cluster meeting.

Every Upazila Chairman and some technical officers claimed that their time was wasted in the meeting. Most of the time, they have nothing to do after discussing their part in the meeting.

An officer suggested that the Cabinet Division should reconsider the meeting date. The Cabinet Division has fixed the DDCC meeting for the third Sunday of each month. He points out that Friday and Saturday are weekly holidays in Bangladesh. Monday or Tuesday can be selected instead of Sunday, which is the

⁴² In Bangladesh, first-class gazetted officers are divided into two parts. One is called cadre service, and the other is non-cadre. Cadre service is more prestigious than non-cadre service.

starting date of the week. People do not study for meetings on the weekends. Members participate in the meeting in a holiday mood. They lack preparation for the meeting.

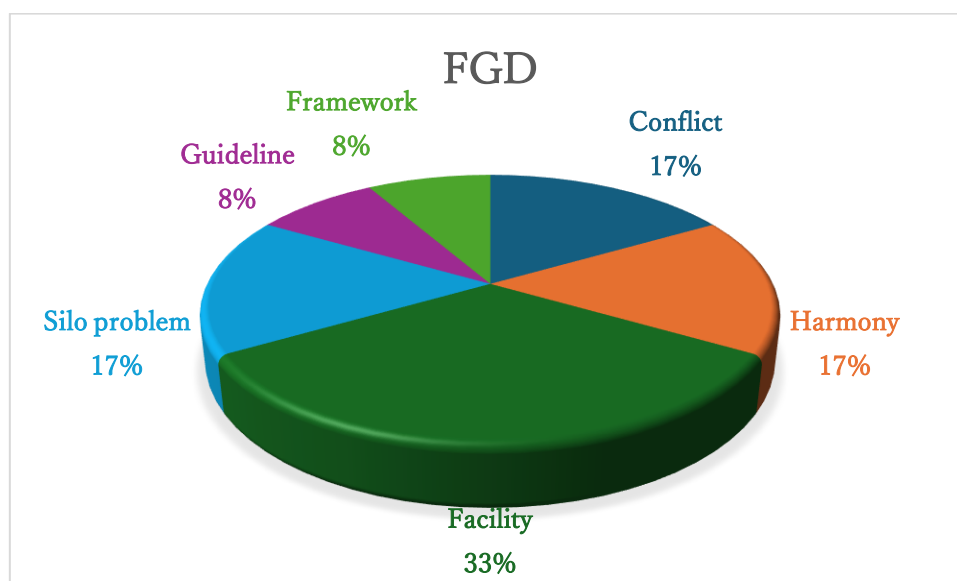
Seating arrangement is another issue. Most of the participants are dissatisfied with the seating arrangements. They want to sit near DC. Some suggested that senior officials should be given priority. Some say that the seating priority should be given according to the volume of the work. An executive engineer from RHD claims that he has to sit far from the centre. Though he looks young, he is a cadre and a fifth-grade officer. Moreover, his work volume is greater than that of many other departments. An officer suggested that there should not be any reserved seats for any officer. He adds that those who come first will sit anywhere they desire, and the attendance must be digitalized.

However, participants in the survey and FGD emphasized law-related issues and the framework of the meetings in an equal way. But the different scenario has been seen in in-depth interviews. Participants focused more on the framework of the meetings than on various guidelines. Some participants even believe that it is also possible to make the meeting fruitful in existing legal frameworks.

5.4. Facility

In the FGD, participants talked more about the factors related to facilities. All the FGD participants are from upazilas. Both the UNO and Upazila Chairman attended the FGD. Their main concern was the limitation of facilities in DDCC. A graphical presentation of their concern about the facility and other issues is presented below:

Figure 43: Graphical presentation of the views of FGD



It has been found that more than 33% of the FGD was based on facilities. A Upazila Chairman pointed out that some upazilas are far from the district headquarters. They have to come to the district headquarters at least four days a month. Their fuel cost is limited. They do not get any travel facilities from DDCC. It becomes difficult for them to attend the meeting. All the UNOs also supported the idea.

Another Upazila Chairman has raised the issue of training. Some political persons are also members of DDCC. But the trainings are provided only to the government officers most of the time. As they do not know enough about different departments' activities, they cannot participate in all the discussions.

The meeting sometimes continues for over three hours and crosses lunchtime. No lunch is provided for the participants. As some participants come from far distances, it is impossible to take lunch after returning to their working stations. They have to spend their own money to attend the meeting. In the in-depth interview, the issue of lunch was asked to a DC. He replied that we have a minimal budget. For this meeting, there is no budget from the central ministry. We only provide snacks and tea during the meeting.

Two UNOs proposed for the financial budget to DDCC to take and implement a few projects on a pilot basis. They logically explained that the DDCC has sufficient human resources setup to implement a project. Moreover, the officers in upazila will also be available to assist them.

In meetings, small teams are sometimes formed to monitor development project activities. These teams do not work wholeheartedly. The reason is reflected in the interview of a District Youth Officer:

I, along with other officers, was a team member investigating a matter regarding the implementation of a development project. We had to visit the site several times. But we did not get any support from the DDCC. I do not have any government vehicles. It became very tough for me to go to the site. Anyway, I managed to spend my own money. From that time, I want to avoid that type of 'burden'.

A civil society representative also spoke in the same way. Not all the members are rich in the DDCC meeting. Some sort of remuneration could be provided to the members. The committee can reward its members for good performance. It can also offer vehicle support, particularly for inspecting and monitoring development projects when necessary. He suggests that DDCC can provide training and workshops not only to the district officers but also to the upazila officers.

An engineer expressed in a frustrating tone that, despite having an 'officer club,' we cannot utilize it. It could have been used as a tool where so many problems would have been solved.

All these issues were asked to the DCs. They replied that they do not have a single-digit budget for this forum. Everybody is blaming them. For every activity, money is needed. But from where will they bring the money? They inform that they have to manage everything with limited resources. They will write to the higher authority, mentioning all the issues.

Apart from the monetary, infrastructure and transportation facilities, several participants demanded the decentralization of both IMED and the Planning Commission in the district level. If the process takes time, their representation in the meeting must be ensured through a virtual platform. Both IMED and the Planning Commission have all the information on every ongoing project. In that case, no department will be able to hide information and there will be no duplication. Moreover, IMED will have direct contact with the implementing bodies every month.

However, it has been found that the participants in FGDs are more concerned regarding the resources of DDCC than the other participants of the survey and in-depth interviews.

5.5. Leadership

Participants in the survey and in-depth interviews assert some factors that are related to the leadership quality of the Deputy Commissioner (DC). No participant talked about leadership issues concerning any other officers except DC. They claim that the post of Deputy Commissioner is still vibrant in the district from the British era to the present. This post carries more value than the politicians. A district's problems can be solved if the DC can lead from the front. The Deputy Commissioner's active role is necessary in the meeting to review the progress of the projects, avoid threadbare discussion, find out the obstacles, and try to solve them locally.

Participants in in-depth interviews say that the DC must be proactive. S/he should not wait for the responses of another department. DC must inquire of other officers regarding their work, but not from an authoritative point of view. Some DCs never advance to other departments unless they come to him. They say that this is not the quality of a leader. An RHD engineer expressed his views:

This year, the National Curriculum and Textbook Board (NCTB) failed to deliver books to the schools in time. In our district, only 35% of books were delivered in mid-January. But the new academic year started on the first day of the year. So many schools could not start academic activities on time. But the DC could take the initiative. He could direct each district department to

take charge of a school. That department would make photocopies of one or two chapters of each book and distribute them to their designated school. Teachers could start academic activities on time. By the time they finish providing chapters, new books of NCTB would have arrived. But DC did not take any initiative.

Several participants have said that DC should own every department like his own. If DC owns the work of other departments, then it becomes easier. A civil surgeon has expressed his experience during the time of COVID-19:

During the time of COVID-19, my district was lagging behind in the vaccination program. People were highly reluctant to get the vaccine due to superstitious beliefs. There was pressure from the high authority. I met with DC. He understood and took it as his own work. In the next meeting, I raised the issue in the DDCC meeting. DC briefed the officers and distributed the work among them. He also requested the politicians to come forward. After that, everybody came forward. Finally, this district ranked second in the country in the vaccination program. This collaborative approach would not have come into being if DC had not owned the work.

A participant remarks that DC must have fellow feelings, and he should give shelter to others. If DC does not shelter any department, they will not get the courage to take risks for the people. In meetings, politicians sometimes criticize officers. If DC has a fellow feeling for them, he takes stern action for such misbehavior. One participant expressed that he had experienced both sides of DC. In the same meeting, DC showed a different attitude toward different members. When the DC likes a member, he appreciates him. But if he does not like a member, he lets other members criticize that member even on a silly matter. The behavior of a DC should be like that of a role model who will not show any partiality to any of the members of DDCC. If the DC is a role model, then everybody will follow him.

In the survey, a participant stated that the meeting depends on DC's mentality. If he simply wants to time pass, i.e. waste time, or dominate over others, he can do

it. He can also think that he will not time pass or dominate. Instead, he will strictly check whether the projects are being implemented properly.

A high official from the ministry suggested that it is high time DCs avoided 'path dependency' and broke the traditional organizational culture. Traditionally, every DC follows the precedent. But it is also necessary that they think outside the box.

Another participant said that DC's attitude is important. He gave an example of a successful DC. When the DC was first appointed, he invited different stakeholders unofficially. At the end, he sat with all the members of DDCC. Everybody felt enthusiastic.

Some participants suggested that the Cabinet Division and MOPA should appoint DCs meticulously. Because they represent a district. Moreover, the Cabinet Division and MOPA should arrange special training for DCs to improve their leadership quality.

Anyway, a few participants also emphasized the leadership of political leaders. If the MPs are present, the meeting runs very smoothly and effectively. There is no conflict, and everyone tries to share all the information related to development activities. But it is not possible for MPs to remain present at every meeting. In that case, the role of Upazila Chairman and Mayor is very important. But they also frequently remain absent from the meeting.

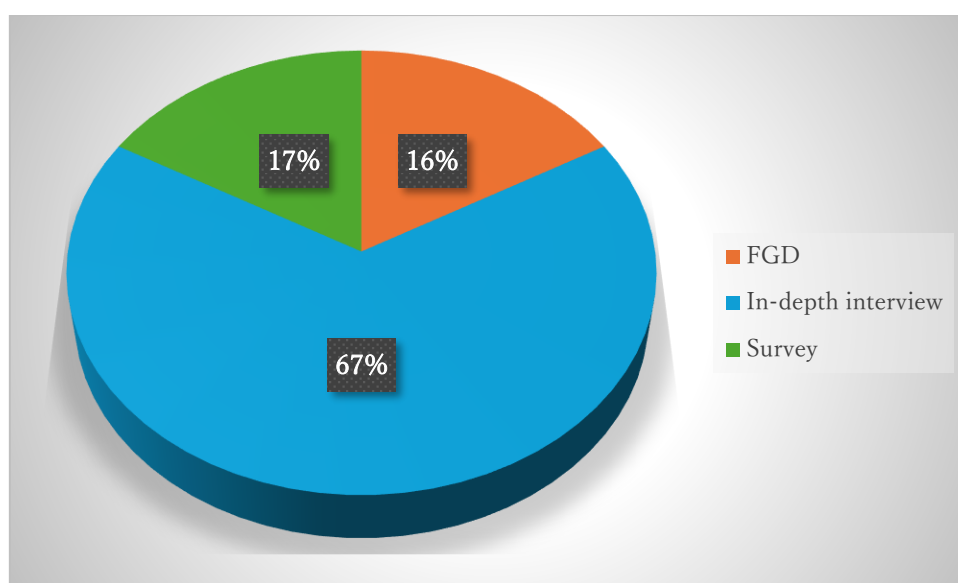
However, no participant in the FGD talked about the factors relevant to leadership. Because they do not find any lack of DC or another district officer regarding leadership quality. The reason is that UNOs are under the direct authority of the District Administration. DC evaluates their ACR (Annual Confidential Report). On the other hand, Upazila Chairman gets priority in the meeting as a politician. So, they do not talk about the issues of leadership in DC.

5.6. Silo syndrome

In survey responses, 48.8% of respondents claim that there are some factors related to siloization which is one of the main obstacles to achieve inter-

organizational coordination at the district level. They state that they are obsessed with vertical instructions and do not put too much emphasis on horizontal relationships. Participants in in-depth interviews and FGD also believe that they are suffering from silo syndrome. A comparative figure among in-depth interviews, open-ended responses in survey, and FGD based on the reactions against silo syndrome are given below (Figure 44):

Figure 44: Graphical presentation of silo syndrome in FGD, survey, and in-depth interview



It has been found that in in-depth interviews, respondents talked more about the factors related to siloization rather than FGD and survey. But all respondents agreed that these factors not only hinder the inter-organizational coordination of DDCC but also create a challenge for DDCC to communicate vertically with line ministries. These factors are hierarchical directions, evaluation from the top, departmental priority, field avoidance, and central planning.

All the participants whose response is related to silo factors claim that they cannot ignore the hierarchical directions. A non-gazetted first-class officer said they have the appointing and controlling authority. Appointing authority is the line Ministry, and the controlling authority is the Directorate. He confirmed that he must obey and follow the instructions of both. If anyone denies, then his job is at risk.

On the other hand, they are not legally bound to DDCC. They can overlook the direction of DDCC. But they cannot even think about disobeying any hierarchical directions. Because there will be departmental punishment.

"The top agency always prefers to avoid the field," remarked an engineer. They have had a central database for several years. They take a project based on the 'bounded rationality', ignoring the 'full rationality' of the field. An engineer from the Bangladesh Water Development Board) BWDB expressed his views:

Engineers from Dhaka conducted a feasibility study. They do not know the area and sometimes fail to depict the actual situation. In my district, there was a project to re-excavate ponds. The objective of this project was to purify the pond's water so that people can drink it. However, this is an unnecessary project in this district. Because there is no scarcity of drinkable water here. This project may be beneficial where the tubewell water is salty (near the Bay of Bengal) or in the hill tract area where fresh water sources are limited.

He also informs that due to the top selection, it is also seen that the canal is 20 feet, but the bridge is only 15 feet. That is why several participants emphasized local planning.

Another Engineer from PHD explains why they do not share the information about any project in a pre-project stage in DDCC. He says that they are not sure whether that particular project will be passed or not. Because several DPPs are always ready in the ministry. If he speaks about a project in DDCC that is not approved or the ministry did not forward it, he will be in an embarrassing situation in the meeting. That's why they cannot talk about any project in a pre-project stage in the meeting. They are handicapped and dependent on the central decisions.

The line department always gets priority. There is no scope to avoid it. An officer from the infrastructure project implementation department says:

In the implementation stage of a project, when a project is passed in the ECNEC, I feel it's an order for me. I must implement the project anyway. If

I fail, I am good for noting to the higher authority. By anyhow, I have to show financial progress. I even violate rules and regulations to run the project. I know that this work is not necessary here, but I can do nothing. If I tell the truth in the meeting of DDCC, I may fail to implement it. Because everybody will say there is no necessity to implement it here. If the top agency knows that I have shared the information, and the project implementation is halted for that, I will be punished. So, I also hid some facts in the meeting. I do not bother whether the project will have any impact on the people or not, or whether other departments will be affected or not.

He also states that if he only fails in the implementation and all the other districts become successful, it will adversely impact his career.

A Deputy Commissioner (DC) also confirms that officers of DDCC prefer to communicate with their vertical authority. Whenever we ask them about any project, they consider it an authoritative approach. But they do not even mind the unbecoming order of their line bosses.

Another problem is the evaluation by the top agency. Officers get promoted based on the assessment of their superiors. There is an Annual Confidential Report (ACR) and an Annual Performance Agreement (APA) for every officer, evaluated by the controlling authority. Some engineers have reported that there are marks in APA and ACR based on the implementation of development projects. So, they give more importance to implementation rather than outcome and impact. They also indicate that the top overlooks their inter-organizational performance.

A representative from civil society complains that officers listen to them but implement the directions of their hierarchical boss. Political leaders also have the same views. An Upazila Chairman blames the district officers for over-controlling the Upazila officers. He says that officers of Upazila also tend to listen more to their line district officers rather than to them. Some UNOs also expressed the same views. Another Upazila Chairman claimed that DDCC officers tend to bypass the elected politicians and seek verbal instructions from their top management.

An officer from the ministry, based on his experience, says that if a line ministry needs information or a report, it prefers line district offices rather than DDCC. Because they can direct them to change the information or report if they do not like it. Moreover, they provide a minimal time frame to the line offices. District officials do not get enough time to discuss it in DDCC. He sums up that the central authority ignores the field and makes decisions based on 'bounded rationality,' which delivers the wrong design of the project, and the consequence is poor implementation.

Thus, silo syndrome not only hampers the inter-organizational coordination but also destroys the possible connection between the line ministry and DDCC. However, in survey responses, 65.9% of respondents believe that the silo syndrome can be prevented by creating shared goals and by sharing information.

5.7. Corruption

Corruption is both the cause and consequence of the failure of DDCC. A participant in in-depth interviews explained it. He says that the lack of coordination in DDCC creates the opportunity for corruption. On the other hand, some officials intentionally avoid coordination to gratify their needs. Moreover, factors such as favoritism, nepotism, undue pressure, unethical tasks, conflict of interest, bribery, personal gratification, and economic rent are directly related to corruption.

Why is the coordination between the line ministry and the DDCC not working? An officer of the central ministry explains it. He has more than 20 years of experience in service both in the field and the ministry. He says:

Now, project culture is like creating economic rent. The more projects, the more personal financial benefits. It is the rent that creates duplication of projects and irrelevant projects. Good coordination can prevent corruption. Around 50% of corruption in project management will disappear if DDCC can truly manage the inter-organizational coordination. But when governance is not fair, coordination does not work. There is also a lack of political and bureaucratic incentives in the country. As a result, the Cabinet

Division does not regularly monitor the function of DDCC. In this context, we have to emphasize the pocket of effectiveness as other options are not working.

A participant related to human development admits that, due to personal gratification, coordination is not working. All the persons associated with development projects get some financial benefit either legally or illegally. He further says that the same people obtain training from various departments and receive the participation fee in capacity development training. All the department knows it. But they continue to train the same people. Because if they select trainees based on the accurate criteria, they will not get enough participants, as mentioned in the DPP. In that case, the trainers will also get fewer incentives.

Corruption is enormous in terms of infrastructure development activity compared to capacity development. An Engineer expresses his views:

Most of the project managers collect a percentage illegally from contractors. This money is distributed among stakeholders. The more financial progress, the greater individual gain. That is why we do not consider duplication, overlapping, outcome, and impact of the project. You know, duplication can be avoided by discussing in the meeting. But nobody wants to cut the financial volume of the project.

Another problem is the conflict of interest. The project is being taken mainly by the influence of heavyweight persons such as political leaders, high-level bureaucrats, and socially influential persons. In most cases, the concerned department has no knowledge of it at the district level. In the implementation stages of those projects, nothing can be done without informing those heavyweights. They also unofficially direct where to buy the raw materials for the project and who will be the subcontractors. They also interfere in the selection of the manpower for the project. Then, local political leaders also want to implement the project according to their desire. Project sites, location, and beneficiary have to be selected according

to their desire. An engineer expressed sadly that they cannot discuss this problem in the meeting. It is an open secret, but nothing can be done.

An Education Department participant says that the Members of Parliament (MPs) select schools for the next development work. He picks school on his own desire. Different schools' management is competing to win the MP's favor. A school with many students does not get a building even in 20 years, whereas a new school with fewer students gets infrastructure facilities very easily because of nepotism and favoritism. A member of DDCC cannot complain against an MP.

In this way, factors related to corruption hinder inter-organizational coordination at DDCC and impede DDCC from maintaining a relationship with the line ministry.

However, in FGD and the survey, nobody talked about factors related to corruption. Upazila Chairman and UNO do not discuss this because the district officers are one step ahead of them. Additionally, sometimes there are allegations of corruption against them, too. On the other hand, the participants (who talked about corruption) were asked in in-depth interviews why they did not write anything regarding corruption in their survey responses. They replied that as everything is documented in a Google form survey, they hesitated to write there.

CHAPTER SIX: CONCLUSION

6.1. Introduction

This chapter concludes the research by summarizing the findings that are consistent with the research problem, research objectives, research questions, and methodology. Based on the findings through analysis, the study also recommends short-term, mid-term, and long-term policies to improve the inter-organizational coordination of the DDCC and the implementation of development projects. It also highlights the study's contributions, limitations, and scope for further research.

6.2. Conclusion

This study sought to answer two research questions. These are: 1) What are the factors affecting inter-organizational development coordination at the district level in Bangladesh? And 2) What are the coordination challenges between DDCC and the line ministry in the implementation of development projects?

Through the analysis and discussion of the findings in the previous two chapters, six themes emerged: conflict versus harmony, guideline and framework, facility, leadership, silo syndrome, and corruption. All the themes are related to the first research question, while the last two themes are connected to the second research question. Among the themes, there are some positive and negative factors that affect inter-organizational coordination, reflecting the framework (Figure 8) shown in the second chapter, 'Literature Review.' In the survey, the four negative factors (siloization, division of labour, civil service conflict, and individual performance) and the four positive factors (mutual trust, information sharing, informal relationship, and shared goals) developing from the existing literature were verified and are depicted in Figures 28 and 29 consecutively in chapter 4. Despite having (other) options in the questionnaire (Appendix 3), no participant has referred to any other factors. However, some issues related to facility and corruption were identified in the open-ended questions of the survey, FGD, and in-depth interviews.

One of the two objectives of this study is to find out the factors hindering inter-organizational coordination at the district level from which the first research

question was developed. In the theme, 'conflict versus harmony,' several conflicts are seen, such as conflict between generalist and specialist, cadre officers and non-cadre officers, administration and others, officers and politicians, and seniors and juniors in service. On the other hand, some issues, such as personal relations, mutual respect, mutual trust, fellow feelings, informal activity, and informal communication, can minimize those conflicts. In the theme, 'guideline and framework,' several factors indicate that there is a lack of rules and regulations. Additionally, the meeting procedure has a few drawbacks, namely time management, meeting date, seating arrangement, monotonous meetings, and the serial of the working paper. The forum DDCC is suffering from logistics and resources observed in the theme 'facility.' Several factors related to leadership qualities are found in the theme 'leadership.' Vertical directions, hierarchical instructions, departmental punishments, marks in ACR and APA, promotion and evaluation, and central planning are the reasons for showing 'silo syndrome.' Favouritism, nepotism, personal gratification, bribery, conflict of interest, undue pressure, unethical tasks, and economic rent are the factors related to the theme of 'corruption.'

The second objective of this study is to find out the coordination challenges between DDCC and the line ministries from which the second research question emerged. The factors related to 'silo syndrome' and 'corruption' are the challenges between DDCC and line ministries. To ensure the issues of 'corruption,' the top management of line ministries gives vertical emphasis to the line department in districts rather than DDCC. The findings show that the district officers are bound to obey their hierarchical bosses to secure their jobs and promotions.

One of the arguments of this study is that according to the 'network theory,' DDCC should be able to form a strong horizontal network, but it fails. The reasons are the factors related to each theme, and eventually, the members of DDCC respond only to the departmental vertical calls. Thus, DDCC fails to build a solid inter-organizational network.

Another argument of the study is that despite having the possibility of bottom-up coordination in the 'network mechanism,' DDCC as an organization fails. The reasons are related to 'corruption,' which impedes the possible coordination between DDCC and line ministries. It is not the DDCC but rather the line ministry that does not want to coordinate with DDCC to secure the factors mentioned in the theme 'corruption.'

6.3. Value addition of this study

Though no research has been done yet on DDCC, several researchers have already talked about the conflict of officers. However, nobody spoke about the facilities of DDCC. The responsibility is huge, but the resources are limited for DDCC. Several researchers and consultants have given importance to rules and regulations, but the framework of DDCC remained unnoticed. No literature has yet been found on the meeting procedures of DDCC. Silo syndrome of DDCC members is a new finding that adversely affects project implementation. The district officers are forced to create 'silos' by the top management. Bangladeshi researchers have already talked about corruption in project management. But, the inverse relationship between corruption and coordination is new. Moreover, the study also reveals a relationship between corruption and siloization. Leadership is not a new thing, but the leadership quality of the Deputy Commissioner is very crucial in maintaining inter-organizational coordination at the district level. Lastly, the strange behavior of elected political leaders in DDCC is a fresh topic in existing literature.

6.4. Policy recommendations

Although it is tough to make DDCC fully functional in implementing development projects at the district level, several measures can be taken to make it possible. The measures may be divided into three steps: short-term, mid-term, and long-term. The implementation can be started from 1st July of 2026. Because the development activities are directly related to the financial year, a financial year begins on 1st July in Bangladesh. Nevertheless, some other departments and ministries are linked; the Cabinet Division will solely be responsible for the

implementation as the Cabinet Division has the authority to manage inter-ministerial coordination.

6.4.1. Short-term (Within one year)

There are some suggestions that DDCC can implement immediately without the help of any ministries, but some suggestions DDCC cannot do alone because of legal obligation, financial issues, and logistics. **The suggestions which DDCC cannot implement alone are:**

Resources related:

- The Cabinet Division should allocate a lump sum budget to the DDCC of each district to maintain its operational cost.

Legal issue related:

- IMED should empower the chairperson of the DDCC to supervise and monitor the development projects. DDCC may form some high-power sub-committees or teams to inspect those development projects. They will give impartial reports to the DDCC. It will evaluate the report and send it to the concerned authority.
- There should be strong support from the Cabinet Division to strengthen the DDCC. For this, the Cabinet Division should regularly monitor and evaluate the DDCC meeting minutes and intervene to address the district issues effectively.
- A copy of DPP/TAPP must be sent to DDCC as soon as a project is approved.

Capacity development related:

- Intensive lectures by the top officers of every department to the DCs before appointment.

Suggestions which can be implemented at once without any sort of intervention of the ministries:

- The meeting discussion should start alternately, not always fixing on a particular department. The department's serial in the meeting's working paper should be rotated in each meeting.
- DDCC can reward its members quarterly in a year for the best performance. The members will elect/select the best performer. It can also reprimand a member for any misdeed.
- DDCC can arrange annual sports, picnics, and cultural events to enhance the fraternity and mutual trust among its members. If there is no budget, they can arrange those themselves.
- The seating arrangement problem can be solved using the 'first come, first serve.' The member who will come first will sit anywhere s/he desires.
- DDCC should also focus on Upazila monthly meeting minutes in rotation to make UNO and Upazila Chairman accountable.
- If the meeting becomes long, lunch may be arranged based on each department's contribution until the budget is allocated from the Cabinet Division. Because a hungry man is an angry man, and an angry man makes the wrong decisions.
- To make the meeting more effective, it can discuss local grievances.
- If any decision is made in the meeting, it must be monitored in the next meeting whether it has been implemented or not.
- Comments and expert opinions can be taken from the relevant Experts and Individuals (outside of DDCC) if necessary.
- Lastly, the DDCC of a district may follow the Pocket of Effectiveness of another DDCC, which is relatively more effective despite the adverse environment.

6.4.2 Mid-term (Within three years)

Legal issue related:

- The Cabinet Division, the highest guiding authority for all field-level departments, directly supervises DDCC. So, they should provide clear guidelines and instructions to DDCC, all the ministries, and their field-level departments so that they can follow those guidelines without any failure.
- Furthermore, the Cabinet Division should circulate the executive order to all the ministries by giving instructions to monitor and inspect whether the departments comply with the decisions of the DDCC.
- DDCC's approval should be made mandatory to pass a project if it is solely for that district.
- The presence of political leaders must be ensured with the help of the Local Government Ministry.
- Project location and beneficiary selection of a district must be done by the local district officials following the rules and regulations with the help of the local politicians. The top must delegate these functions to the bottom.
- The contribution of the members of DDCC should be included in the ACR and APA.
- Representatives of DDCC must be included in the PIC of any project.

Capacity development related:

- The MOPA and the Cabinet Division may arrange inclusive training and workshops for the participants of DDCC. Residential training is needed to build relationships. Sri Lanka's PLSP program can be an example.

Human resource related:

- The Additional Deputy Commissioner (ADC) (Development and Human Resource Management), along with supporting officers and staff, should be

empowered by law to assist DC in organizing and managing the meeting. Moreover, s/he should be authorized by the distinguished ToR to supervise development projects. The capacity and skill of ADC might be strengthened by specific training and tasks.

Meeting framework related:

- The meeting date may be shifted to Monday to provide an extra day to prepare for the meeting after the weekend.
- Digital attendance should be started in the meeting. A software application can be developed for all the districts by the Cabinet Division. Then, they will be able to monitor who is present and absent in the meeting automatically. There will be no need for the district administration to write against anyone regarding their presence in the meeting. Moreover, the presence of political leaders in the meeting will increase.
- DDCC meetings may be held in the sector or cluster-wise. For example, one month is spent on infrastructure, and another is spent on human development.

6.4.3 Long-term (To be continued)

Here, all the suggestions are related to legal issues.

- ◆ Local-level development planning should be done/coordinated at the DDCC level, and these plans should complement the national development planning.
- ◆ Decentralization of IMED and the Planning Commission at the district level.
- ◆ DDCC will take and implement the development projects at the district level, and the necessary budget will be allocated from central ministries.
- ◆ There should be strong policy guidance from the Cabinet Division to make the best use of the DDCC. Currently, there is a lack between the DDCC discussions and actual implementation at the ministry level.

- ◆ There will be a clear charter of duties for all. For example, tubewell installation will only be done by the Department of Public Health Engineering (DPHE). If other departments want to install tubewell, they will hand over the funds to the DPHE.

6.5. Contribution of the study

This study focuses on the coordination gaps of the DDCC in implementing development projects in Bangladesh, which contributes to new literature on project management. The importance and contribution of DDCC are broadly analyzed in the study. It further shows how a ‘networking organization’ can be affected by siloization. The study also suggests how to overcome such handicaps. It can be used as a reference by other researchers, consultants, and policymakers interested in the barriers to project implementation at the root level and the organizational behavior of DDCC.

6.6. Limitations and suggestions for further research

There are 64 districts in Bangladesh. Except for three hill districts, every district has a DDCC platform. This study covers only three DDCCs from three different districts based on several criteria. More factors might have been found if data were collected from more DDCCs. Research could be done in the future by incorporating more DDCCs.

Additionally, not all the members of DDCC were interviewed. More variations could have appeared if all the members had been interviewed. Only two representatives from central ministries were interviewed in this study. Future studies might be done by integrating more members from DDCCs and ministries.

Moreover, the author is also a government officer. Some interviewees felt shaky about whether they would talk freely or not. Though the author has managed well, a third party could have been appointed to collect data by the author. Maybe the interviewees could speak more freely about the problems of DDCC. Researchers from non-government professions can do further research.

Finally, it has been found that the elected political leaders frequently remain absent from the meeting. This study did not entirely cover the part of why they persistently ignored the meeting. Researchers and policymakers can investigate this issue further.

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Appendices

Appendix A

Summary of the attendance sheet of politically elected leaders from October 2019 to June 2024 in 'X' district.

1 stands for presence

0 stands for absence

Due to the covid 19, from March 2020 to September 2021, all the meetings were held online. No record of attendance of online meetings are preserved.

In 'X', there are six Upazila Chairmen and two Mayors.

Year 2024

	Jan uar y	Feb ruar y	M arc h	A pr il	M a y	Ju n e	J ul y	Au gus t	Sept emb er	Oct obe r	Nov emb er	Dec emb er	T ot al
May or	2	1	1	1	0	1							6
Gosa ihat Chair man	1	0	1	0	0	0							2
Dam udda Chair man	0	0	0	0	0	0							0
Sada r Chair man	0	0	0	0	0	0							
Naria Chair man	1	1	1	0	0	0							3
Bhed argan j Chair man	0	0	0	0	0	1							1

Zajir a Chair man	0	0	0	0	0	0							0
Total	4	2	3	1	0	2							1 2

Year 2023

	Jan uar y	Feb ruar y	M arc h	A pr il	M a y	Ju n e	J ul y	Au gus t	Sept emb er	Oct obe r	Nov emb er	Dec emb er	T ot al
May or	1	1	1	2	1	1	1	1	2	2	1	1	1 5
Gosa ihat Chair man	1	0	1	1	1		1	0	1	1	0	1	8
Dam udda Chair man	0	0	0	0	1	1	0	0	1	1	0	1	5
Sada r Chair man	0	0	0	0	0	0	0	0	1	0	0	0	1
Naria Chair man	0	0	0	0	1	0	0	0	1	0	0		2
Bhed argan j Chair man	1	0	1	0	0	1		1	1	0	0	1	6
Zajir a Chair man	0	0	0	0	0	0	0	0	0	0	0	0	0

Total	3	1	3	3	4	3	2	2	7	4	1	4	37

Year 2022

	Jan uar y	Feb ruar y	M arc h	A pr il	M a y	Ju n e	J ul y	Au gus t	Sept emb er	Oct obe r	Nov emb er	Dec emb er	T ot al
May or	1	1	1	0	0	1	1	1	1	1	1	1	10
Gosa ihat Chair man	0	0	0	1	0	0	1	0	0	1	0	0	3
Dam udda Chair man	0	0	0	0	0	0	1	0	0	0	0	1	2
Sada r Chair man	0	0	0	0	0	1	0	0	0	0	0	0	1
Naria Chair man	0	0	0	0	0	0	0	0	1	0	0	1	2
Bhed argan j Chair man	0	0	0	0	0	1	0	0	0	0	1	0	2
Zajir a Chair man	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	1	0	3	3	1	2	2	2	3	20

Year 2021

	Jan uar y	Feb ruar y	M arc h	A pr il	M a y	Ju n e	J ul y	Au gus t	Sept emb er	Oct obe r	Nov emb er	Dec emb er	T ot al
May or										1	0	1	2
Gosa ihat Chair man										1	1	1	3
Dam udda Chair man										0	0	1	1
Sada r Chair man										0	0	0	0
Naria Chair man										1	0	0	1
Bhed argan j Chair man										0	0	0	0
Zajir a Chair man										0	0	0	0
Total										3	1	3	7

Year 2020

	Jan uar y	Feb ruar y	M arc h	A pr il	M a y	Ju n e	J ul y	Au gus t	Sept emb er	Oct obe r	Nov emb er	Dec emb er	T ot al
May or	1	1											2
Gosa ihat Chair man	0	0											0
Dam udda Chair man	0	0											0
Sada r Chair man	1	0											1
Naria Chair man	0	0											
Bhed argan j Chair man	0	1											1
Total	2	2											4

Year 2019

	Jan uar y	Feb ruar y	M arc h	A pr il	M a y	Ju n e	J ul y	Au gus t	Sept emb er	Oct obe r	Nov emb er	Dec emb er	T ot al
May or										1	1	1	3
Gosa ihat Chair man										1	0	1	2

Dam udda Chair man										0	0	0	0
Sada r Chair man										0	0	1	1
Naria Chair man										0	0		
Bhed argan j Chair man										0	1	1	2
Zajir a Chair man										0	0	0	0
Total										2	2	4	8

Appendix B

Semi structured interview questions:

Q1. How far is DDCC playing its role in the implementation of development projects?

To what extent are the inspection or monitoring or evaluation reports of development projects are discussed in the meeting? Can you give a fruitful example?

Does DDCC make any recommendation or suggestion to the ministry through this meeting? If yes, give an example. If not, why?

Q2. Have you ever informed other DDCC members or discussed in the meeting of any development project initiative of your ministry in pre project stage or in the implementation stage? If yes/no, why?

Do you believe sharing information with others may reduce duplication in project components and assist in better implementation? Why and how?

Why do members are reluctant to share information with others?

Can you give any successful example of dispute resolution of development issues through this meeting?

Q3. What are the main reasons behind DDCC's ineffectiveness in terms of DP implementation?

Which one is the most influential and why?

Is there any way to recover from this?

Q4. How far does the existing division of labor help in ensuring coordination?

Does your department encourage shared goals/collective action/collaborative work?

Which one you give more priority collective action/line department? Why?

Does line department become a barrier to inter-organizational coordination? Why?

Q5. How much are you involved in the implementation of development projects at present?

In what ways/how far did the central ministry consult with you before taking the projects this year?

Was there any stakeholder analysis in the field? Who and how did this?

Were the members of the DDCC (where multi actors' involvement necessary) informed or given any scope to comment or contribute?

How much of your department's/your/DDCC's recommendations are reflected in those projects?

If there is any gap with the ministry, how far does it affect the implementation of projects?

Can DDCC play a role here?

Q6. How can DDCC be made more effective?

What kind of initiatives can be taken to strengthen DDCC?

Or what are the possible suggestions to make the coordination better?

Appendix C

Survey questionnaire

Dear colleague,

I (Prabir Kumar Roy, a student of Graduate School of Governance Studies, Meiji University) would like to invite you to participate in a survey for the study titled 'Public sector project implementation in Bangladesh: An inquiry into the coordination gaps of District Development Coordination Committee'. This survey will look into your individual experiences based on your participation in DDCC meetings and it will help me to understand the factors that are responsible for creating barriers in effective coordination.

All information will be kept strictly anonymous and confidential. Meiji University respects your privacy and is committed to protecting your data. All individual questionnaire responses will be concealed and no one other than the researcher will have access to the responses. The data collected will be stored in a secure database. Data will be retained for use as a baseline reference in future evaluations. The data will not be used for any other purpose.

Please contact me (lit.prabir@gmail.com) if you would like to have a copy of the survey responses, and/or if you would like to remove your data (if any) from the records. Please visit Meiji University's website https://www.meiji.ac.jp/cip/english/privacy_policy.html for further details on the Privacy Notice, including how you may access and correct your personal data or withdraw consent to the collection, use, or disclosure of your personal data. Please be informed that by answering this survey, you have provided your consent to participate in this study. I look forward to your favorable response. Thank you in advance.

* Indicates required question

1) Name:

.....

2) Sex *

Mark only one oval.

- ☐ Male
- ☐ Female
- ☐ Prefer not to say
- ☐ Other

3) Which service/profession do you belong? *

.....

4) Name of the present posting/Designation/Position *

.....

5) Length of service *

Mark only one oval.

- ☐ Between 3 to 6 years
- ☐ Between 7 to 10 years
- ☐ Between 11 to 14 years
- ☐ Between 15 to 18 years
- ☐ Above 18 years

6) How often do you participate in DDCC (District Development Coordination
*
Committee) meeting?

Mark only one oval.

- ☐ Never
- ☐ Occasionally
- ☐ Sometimes
- ☐ Often
- ☐ Always

7) How many times have you observed or participated in a discussion on *
development project issues in DDCC?

Mark only one oval.

- ☐ Not at all
- ☐ Once
- ☐ Several time
- ☐ Many time
- ☐ Always

8) What is your view regarding DDCC's role in development project *
implementation?

Mark only one oval.

- ☐ Highly convincing
- ☐ Convincing
- ☐ Not convincing
- ☐ Do not know
- ☐ Can not judge

9) Lack of inter-organizational coordination in field level makes adverse impact
*

on project implementation. What is your view regarding this statement?

Mark only one oval.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

10) DDCC can play a vital role to improve coordination in field level *

Mark only one oval.

- ☐ Agree
- ☐ Disagree
- ☐ Do not know
- ☐ Can not judge
- ☐ Other

11) Is there any scope to further strengthen DDCC? *

Mark only one oval.

- ☐ Yes
- ☐ No
- ☐ Other:

12) If you have selected "yes" in the previous question, please write a few sentences on how to strengthen.

.....

.....

.....

.....

13) If you have selected "No" in the previous question, please write a few sentences why there is no further scope.

.....

.....

.....

.....

14) Which is/are the most influential factor(s) hindering DDCC to work *
effectively in terms of development project?
(You can select more than one and you can write more in "other option")

Check all that apply.

- ☐ Lack of Legal mandate
- ☐ Over intra-departmental (vertical) control (siloization)
- ☐ Civil service conflict
- ☐ Individual performance evaluation by each department
- ☐ Other

15) Do you have any idea how to mitigate the above problems? Please write a few sentences.

.....
.....
.....
.....

16) Among the criteria mentioned below, in which way(s) DDCC can be made
*
more effective?
(You can select more than one and write more in "other" option)

Check all that apply.

- ☐ By improving mutual trust
- ☐ By more information sharing
- ☐ By creating shared goals
- ☐ By building informal relationship
- ☐ Other

17) Do you have any overall suggestion on how to make DDCC more effective?
*

Please write a few sentences.

.....
.....
.....
.....

Submitted to the Faculty of the Graduate School of Governance Studies
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Meiji University, Japan
2025

Title of Thesis: Women's Participation in Participatory
 Governance Mechanisms in a Local Government
 of Nepal

Governance Program,
The Graduate School of Governance Studies

Name of Supervisor: Nagahata Makoto

Name of Author: Silwal Kapil

Completion in: September 2025

Abstract

This study aimed to explore the factors influencing women's participation in participatory governance mechanisms (PGMs) at the local government level in Nepal and to provide policy recommendations to enhance participation. The research was conducted in Lalitpur Metropolitan City using a qualitative research design. Primary data were collected through semi-structured interviews, focus group discussions, key informant interviews, and field observation. Thematic analysis was employed to interpret the data.

The study found that local PGMs—namely participatory planning, budget execution through user committees, and public hearings—are significantly shaped by a range of interrelated factors at three levels: individual, external, and structural. Individual factors include capacity-related variables such as education, knowledge, skills, income, and time, as well as psychological factors like confidence and self-motivation. External factors involve the influence of family, institutions, and policies, while structural factors encompass social norms, cultural beliefs, gender roles, and the broader political context.

Although these influencing factors are generally consistent with findings from global literature, their interaction in the context of Nepal revealed four noteworthy phenomena: (1) capacity paradox—where capable women lack time to participate; (2) virtuous cycle of participation—a pattern where a limited group of women repeatedly participate; (3) exposure—highlighting the importance of first-time experiences and (4) promoted participation—when external support breaks self-exclusion and encourages involvement.

Policy implications include the need to strengthen neighborhood-level planning meetings, which offer inclusive, informal, and accessible platforms for women's meaningful participation in local governance.

Keywords: Women's Participation, Participatory Governance Mechanisms, Local Government

Table of Contents

Abstract	
Acknowledgement.....	i
List of Tables.....	ii
List of Figures.....	ii
Abbreviations and Acronyms.....	iii
Chapter I: Introduction.....	1
1.1 Background.....	1
1.2 Statement of problems.....	3
1.3 Scope of the study.....	4
1.4 Research objectives.....	5
1.5 Research question.....	5
1.6 Significance of the study.....	5
1.7 Structure of the thesis.....	6
Chapter II: Context of the Study.....	8
2.1 Background.....	8
2.2 Local governments in Nepal.....	9
2.3 Participatory governance mechanisms in LGs.....	9
2.4 A brief on women's status in Nepal.....	12
Chapter III: Literature Review.....	15
3.1 Exclusion and gender in participatory local governance.....	15
3.2 Factors Influencing women's participation.....	16
3.3 Summary of literature review.....	26
3.4 Conceptual framework.....	27
Chapter IV: Methodology.....	29
4.1 Selection of the research design.....	29
4.2 Study area.....	29

4.2.1 Change in scope of the study.....	30
4.3 Data collection methods.....	33
4.3.1 Key informant interviews.....	33
4.3.2 In-depth semi-structured interviews.....	34
4.3.3 Focus group.....	37
4.4 Data analysis.....	39
4.4.1 Transcription.....	39
4.4.2 Coding.....	39
4.4.3 Analysis.....	40
Chapter V: Results.....	41
5.1 Individual factors.....	41
5.1.1 Time.....	41
5.1.2 Confidence.....	44
5.1.3 Capacity.....	46
5.1.4 Motivation.....	51
5.1.5 Exposure in public life.....	56
5.1.6 Social networks.....	58
5.2 External factors.....	59
5.2.1 Organizations.....	59
5.2.2 Support.....	65
5.2.3 Policies.....	71
5.2.4 Access to information.....	75
5.3 Structural factors.....	76
5.3.1 Culture.....	76
5.3.2 Political system.....	82
5.4 Summary of results.....	83
Chapter VI: Discussion.....	85
6.1 Individual factors.....	85
6.1.1 Direct individual factors.....	85

6.1.2 Indirect individual factors.....	91
6.2 External factors.....	94
6.2.1 Support system.....	94
6.2.2 Institutional and policy arrangements.....	96
6.2.3 Information and physical proximity.....	99
6.3 Structural factors.....	101
6.3.1 Culture.....	101
6.3.2 Political system.....	103
6.4 Summary of discussion.....	104
Chapter VII: Conclusion and Recommendation.....	106
7.1 Conclusion.....	106
7.2 Recommendations.....	109
7.2.1 Policy recommendations.....	109
7.2.2 Limitations of the study and recommendations for future studies	111
Bibliography.....	113
Appendices	
Appendix I: A Brief Profile of the Study Area.....	A
Appendix II: Respondents' Profile.....	E
Appendix III: Interview Guide.....	L

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Silwal Kapil
Meiji University, Japan

List of Tables

Table 1 Brief information about the participants of in-depth semi-structured interviews	35
Table 2 Brief profile of focus group participants.....	38
Table 3 Summary of factors explored in the data	84

List of Figures

Figure 1 Conceptual framework for the study	27
Figure 2 Factors influencing women's participation in participatory governance mechanisms in a LG of Nepal.....	105
Figure 3 A virtuous cycle of participation.....	107

Abbreviations and Acronyms

CFUG	Community Forest User Groups
FCHV	Female Community Health Volunteer
FG	Focus Group
GbV	Gender based Violence
GESI	Gender Equality and Social Inclusion
KII	Key Informant Interview
KMC	Kathmandu Metropolitan City
LG	Local Government
LMC	Lalitpur Metropolitan City
MoFAGA	Ministry of Federal Affairs and General Administration
NDA	Neighborhood Development Association
NGO	Non-governmental Organization
NPO	Non-profit Organization
PGM	Participatory Governance Mechanism
SCT	Social Cognitive Theory
SDG	Sustainable Development Goals
SMC	School Management Committee
SNS	Social Networking Sites
UC	User Committee
WC	Ward Committee

Chapter I: Introduction

Women's participation in political and public life is crucial for promoting gender equality and building inclusive societies, and has been safeguarded by international norms for many years (UN WOMEN, 2024). While numerous studies have examined various aspects of women's participation in politics—particularly their representation in decision-making bodies—as well as in sectors such as the labor force, education, entrepreneurship, and agriculture, relatively few have explored women's involvement in community-level, direct participation within participatory governance mechanisms (PGMs) that are open to all citizens. In the context of Nepal, literature on citizen participation in general remains limited. More specifically, studies focusing on women's participation in participatory governance processes—such as public meetings and forums facilitated by local governments (LGs)—are virtually absent. This gap highlights the need for focused research on how women engage in these inclusive, community-level governance spaces.

1.1 Background

Over the past few decades, diverse forms of participatory governance have emerged across the globe, aiming to enhance public involvement in policymaking and the co-creation of public value. Broadly defined, participatory governance refers to democratic practices designed to meaningfully engage citizens in the formulation of public policy. Participatory governance, in particular, seeks to establish a vital connection between public institutions and the general public—an essential condition for ensuring transparency, accountability, and effectiveness in governance (Palumbo, 2017). Importantly, participation in this context often emphasizes the inclusion of historically marginalized social groups or those traditionally granted limited roles in formal political processes. In response, various democratic innovations have been implemented globally, including citizen juries, public meetings, public hearings, public audits, and consensus conferences (McClaverty, 2011).

In the context of Nepal, participatory practices have existed since the 1960s, gradually evolving in quality and institutional robustness over time. However, the nature and effectiveness of local participatory governance have varied significantly across different political regimes (Bhusal, 2023). The democratic transition of 1990 marked a foundational moment in institutionalizing participatory governance, a process further deepened by the promulgation of the 2015 Constitution. The new constitution explicitly embraces the principles of participation, inclusiveness, and federalism. It grants substantial authority to

LGs, outlining specific individual and concurrent powers related to the formulation and implementation of laws, policies, plans, budgets, and the delivery of public services (Pandeya & Oyama, 2019). In alignment with this framework, federal, provincial, and local-level laws and policies have introduced multiple mechanisms to ensure direct citizen engagement in governance. These include neighborhood-level planning meetings, public hearings, and user committees (UCs) that involve local beneficiaries in development activities (Bhusal, 2018).

Despite the existence of institutional, constitutional, and policy frameworks aimed at promoting inclusiveness, the questions of '*who participates*' in participatory governance and '*how*' remain critically relevant. As Acharya & Zafarullah (2022) argue, participatory governance at the local level in Nepal has yet to achieve meaningful inclusivity. Higher-level decision-makers often place limited emphasis on genuine citizen engagement, leading to tokenistic forms of participation. Similarly, Bhusal (2023) notes that the emphasis has largely been on numerical representation rather than the quality of participation. While the introduction of the quota system and gender-inclusive policies has significantly increased the numerical presence of women and other marginalized groups in elected decision-making bodies, this has not translated into substantive or effective participation. Historically excluded groups—including women, Dalits, persons with disabilities, and other minorities—continue to face barriers to meaningful involvement in PGMs, which are often formally open to all (Acharya & Zafarullah, 2022). The enduring influence of informal power hierarchies and entrenched socio-cultural norms further limits women's engagement in community-level decision-making, policy processes, and other forms of collective action, both in qualitative and quantitative terms (Nepal Administrative Staff College, 2018; Upreti et al., 2020).

In the case of Nepal, when reviewing relevant literature on participatory governance, public participation, women's participation, and women's empowerment, it is found that studies are more focused on areas such as women's candidacy in elections (Yadav, 2024) and representation in elected bodies such as parliament (Upreti et al., 2020), legislature, local assemblies (Hamal, 2023), labor sector, agriculture, education, public health, women's reproductive health, entrepreneurship, domestic violence, gender-based violence, and natural resource management (Gautam et al., 2023). No studies on women's participation in PGMs at the community level could be found. In the case of Nepal, in particular, only a few studies have attempted to explore various aspects of citizen participation in

participatory governance (Bhusal, 2018, 2019, 2023; Bhusal & Pandeya, 2022; Pandeya, 2015; Pandeya & Oyama, 2019), and moreover, there seems to be a dearth of research studies on women's participation. Therefore, it was assumed that the understanding at the academic and policy-making levels about the factors influencing women's participation in local PGMs, which are at the core of the participatory governance process (UN WOMEN, 2024; United Nations, 1979), may be very weak. In the present context, this study has attempted to fill this gap by exploring the factors that influence women's participation in the participatory governance process of LGs in Nepal.

1.2 Statement of problems

Over the course of successive political transformations, Nepal has adopted a federal democratic republican system that is regarded as progressive by international standards. The Constitution promulgated in 2015 institutionalizes the principles of citizen participation and inclusiveness in governance (Pandeya & Oyama, 2019). It mandates quotas for women's representation across various political and administrative levels, aiming to rectify historical gender disparities (Adhikari & Sharma, 2022; Upreti et al., 2020). However, experts and scholars have noted that the actual rate of women's participation remains below expectations, and where representation exists, it often lacks meaningful engagement (Acharya & Zafarullah, 2022; Hamal, 2023). Although studies show some improvement in both the quantity and quality of women's participation in governance compared to the past, the anticipated transformative outcomes are yet to materialize.

Empirical evidence further underscores this gap. A nationwide survey conducted by the Nepal Administrative Staff College (2018, P. 33-40) revealed that women's participation in PGMs is significantly lower than that of men. In public activities such as meetings of UCs, parent-teacher associations, and social organizations, men's participation was nearly double that of women. Participation in local planning discussions stood at 38% for men but only 20% for women. Even among women who did attend such forums, meaningful engagement—such as speaking up or assuming leadership roles—was found to be substantially weaker compared to men. Women were twice as likely as men to remain silent in public meetings. Similarly, a 2020 survey found that only a quarter of citizens were aware of ongoing local government development or budget projects, with the proportion of informed women being nearly half that of men (Giri et al., 2020, P.152).

The Beijing Declaration and Platform for Action emphasizes the importance of women's participation not only in politics and public administration but also in civil society and other

domains of public life, as a means to address gendered power imbalances. Despite progress in participation rates, inequality persists. Deeply entrenched gender norms continue to undermine women's access to and leadership in public decision-making processes. The United Nations underscores that the Sustainable Development Goals (SDGs) cannot be achieved without ensuring equal opportunities for women in political, economic, and public life (United Nations, 2021). As Ricciardelli (2018) argues, citizen participation at the community level is a fundamental pillar of good governance. Considering that women constitute half the population, their participation is essential not only for democratic legitimacy but also for advancing women's empowerment (Paul & Kumari, 2016).

Ironically, the very PGMs at the local level—such as public meetings, development discussions, community consultations, and participatory planning—have received limited scholarly attention in terms of identifying the factors that influence women's participation. These mechanisms serve as foundational spaces where women develop leadership skills and decision-making capacities, which are critical for advancing to higher levels of political engagement. Therefore, targeted policy reforms must be informed by empirical insights into the drivers and barriers of women's participation in these grassroots mechanisms. This study aims to contribute to that policy and scholarly agenda by offering a nuanced analysis of the factors that shape women's engagement in local participatory governance.

1.3 Scope of the study

PGMs are present across all tiers of government in Nepal—local, provincial, and federal. However, such mechanisms are most practically and frequently implemented at the local government level. LGs engage citizens in various participatory processes related to planning, public decision-making, natural resource management, public service delivery, and community-driven development. Given this context, the present study focuses specifically on women's participation in PGMs at the local government level.

Considering the diversity and breadth of participatory mechanisms in local governance, it is beyond the scope of this master's-level research—constrained by time and resources—to examine women's participation in all available forms. Such an attempt would risk diffusing the analytical focus. Therefore, this study narrows its scope to one specific and widely recognized participatory mechanism: neighborhood-level planning meetings. These meetings, frequently discussed in Nepal's citizen participation literature, are informal, open to all community members, and typically held at the lowest administrative level within a community (Bhusal, 2018, 2019, 2020; Bhusal & Pandeya, 2022).

Due to their accessibility and inclusive format, these meetings are likely to have involved many women as participants or observers, making them a suitable and manageable entry point for investigating women's participation. Additionally, the familiarity and openness of these forums facilitate easier data collection and offer rich insight into everyday participatory experiences. Thus, this study will specifically examine women's participation in neighborhood-level planning meetings within the framework of participatory governance at the local level.

1.4 Research objectives

This study aims to achieve the following objectives:

- To explore the factors that influence women's participation in PGMs at the local government level in Nepal.
- To provide policy recommendations for enhancing women's participation in such mechanisms.

1.5 Research question

To achieve the objectives outlined above, this study seeks to answer the following central research question:

“What are the factors that influence women's participation in local-level PGMs in Nepal?”

1.6 Significance of the study

This study holds both academic and practical significance. Academically, it addresses a notable gap in the existing literature by focusing specifically on women's participation in local and community-level PGMs—an area that has received limited scholarly attention, particularly in the context of Nepal. By identifying and analyzing the factors that influence women's engagement in such mechanisms, the study contributes to a deeper understanding of gendered dimensions of participatory governance.

Practically, the findings of this study will offer valuable insights to policymakers, LG officials, and development practitioners. By highlighting key enablers and barriers to women's participation, the study will help inform more inclusive and gender-responsive policies and interventions aimed at strengthening women's involvement in participatory decision-making processes at the local level.

1.7 Structure of the thesis

This thesis is organized into **seven chapters**, each contributing to a comprehensive exploration of the factors influencing women's participation in PGMs in LGs of Nepal.

Chapter One introduces the study by presenting the overall context and background, outlining the problem statement, and identifying the research objectives and questions. It also defines the scope of the study and highlights its significance.

Chapter Two provides an overview of PGMs in Nepal. It examines constitutional, legal, and policy provisions that support citizen engagement, with a focus on inclusivity and gender equity. The chapter also reviews the practical implementation of these mechanisms through illustrative examples and discusses the current status of citizen and women's participation in governance. Furthermore, it contextualizes the discussion within Nepal's recent political transformations and democratic reforms.

Chapter Three offers a synopsis of the relevant literature, including empirical and theoretical studies from academic journals, books, and research reports. The review encompasses key themes such as citizen participation, women's participation, and women's empowerment. Based on the synthesis of this literature, a conceptual framework is developed to guide the research design and analysis.

Chapter Four details the research methodology. It explains the rationale for selecting a qualitative research design, the specific methods employed for data collection, and the criteria for selecting the study area. This chapter also discusses the data collection process, ethical considerations, and the approach to data analysis, including the use of thematic analysis. Additionally, it includes a section explaining how the scope of the study was revised following preliminary fieldwork.

Chapter Five presents the research findings. The chapter is organized around key themes that emerged from the thematic analysis of qualitative data, supported by direct quotations and narratives from participants to provide depth and authenticity to the findings.

Chapter Six engages in a discussion of the findings, interpreting them in relation to the field context and the theoretical and empirical literature reviewed in earlier chapters. The chapter explores how the identified factors interrelate and influence women's participation, drawing connections to broader structural, external, and individual dynamics.

Chapter Seven concludes the thesis by summarizing the key findings in response to the research question. It outlines the policy implications and provides actionable recommendations for policymakers to enhance women's participation in local governance. The chapter also reflects on the limitations of the study and offers suggestions for future research to build upon the findings presented.

Chapter II: Context of the Study

The study was conducted to identify the factors that influence women's participation in PGMs of LGs in Nepal. This chapter provides a brief introduction to local governance and participatory governance practices and a brief summary of the status of women in Nepal.

2.1 Background

Nepal's political history has been marked by a series of dramatic shifts between authoritarian control and democratic aspirations. In 1950, the country witnessed the end of the hereditary oligarchy through a violent political struggle, paving the way for the establishment of democracy. However, this democratic transition lasted only a decade. In the early 1960s, the monarchy reasserted control, banning political parties and instituting a party-less Panchayat system that remained in place for the next 30 years.

In 1990, a mass movement led by political parties restored democracy through peaceful protests, resulting in the establishment of a constitutional monarchy with a multiparty parliamentary system. During this period, Nepal also initiated a process of decentralization of governance. However, stability was short-lived. In 1995, the country descended into a decade-long civil conflict initiated by the Communist Party of Nepal (Maoist), which aimed to establish a communist republic. The conflict was fueled by widespread poverty, underdevelopment, inequality, and state failure.

Amidst the political instability, King Gyanendra seized executive powers in 2002, effectively suspending democracy once again. This authoritarian move was met with widespread resistance. In 2005, an alliance between political parties and Maoist insurgents sparked a massive people's movement (*Jana Andolan II*). Millions of Nepalis took to the streets demanding democracy. Overwhelmed by popular pressure, the King relinquished power, and democracy was restored in 2006.

This movement catalyzed historic political reforms. A new constitution, promulgated in 2015, marked Nepal's transformation into a secular, federal democratic republic. The monarchy was abolished, and the country adopted federalism, creating three tiers of government: federal, provincial, and local. The constitution embedded principles of inclusion and participation, mandating the representation of women, Dalits, and other historically marginalized groups across all levels of governance. These institutional changes have laid the foundation for participatory and inclusive governance in Nepal.

2.2 Local governments in Nepal

There are 460 rural (*gaupalika*) and 293 urban municipalities (*nagarpalika*), a total of 753 LGs. Urban municipalities (*nagarpalika*) are further categorized as Metropolitan city (*maha-nagarpalika*), Sub-metropolitan city (*upa-maha-nagarpalika*), and Municipality (*nagarpalika*). There are 6 Metropolitan Cities, 11 Sub-Metropolitan Cities, 276 Municipalities, and 460 Rural Municipalities. These LGs are divided further into wards ranging from five to 35 (Bhusal & Acharya, 2024).

Each ward is governed by a ward committee (WC). The committee is responsible for planning, implementation, and monitoring at the ward level. According to the Local Government Operation Act 2017, the WCs collect demands, prioritize, and prepare community plans based on the participatory planning process. The ward chairperson is responsible for preparing development plans, budgets, and programs for the ward and submitting them to the upper level (municipal executive) for approval. WC is the lowest level of unit of LG in Nepal.

The WC is composed of a ward chairperson and four other members, of whom at least two must be women. The chairperson and members are elected by the citizens of the ward every five years. As previously mentioned, the requirement to elect two women as ward members is mandated by the constitution and relevant laws. The committee has its own office located at the center of the ward, which is staffed by a ward secretary and other personnel.

LGs in Nepal are granted both exclusive and concurrent powers by the constitution, enabling them to formulate and implement their own laws, policies, plans, and budgets. However, the exercise of these powers is constitutionally guided by the principles of participation, inclusion, transparency, and accountability in governance. Given their close proximity to citizens and the practical feasibility of grassroots engagement, PGMs are more effectively implemented at the local level than at the provincial or federal levels. Consequently, various PGMs have been institutionalized within LGs across Nepal.

2.3 Participatory governance mechanisms in LGs

Several mechanisms established by laws and policies promote the direct participation of citizens in decision-making and the implementation of decisions. In this study, these mechanisms are referred to as '*participatory governance mechanisms*'. Most of these mechanisms operate at the community level and are therefore directly linked to LGs. Some of the major mechanisms are presented in this section.

Community forestry

Natural resources such as forests, water resources, landscape, etc., are developed, conserved, managed, and utilized through the participation of local residents. For example, forests are managed by community forest user groups in Nepal. According to the Forest Act, 2019, forest users may form a Community Forest User Group (CFUG) to conserve, develop, manage, and utilize forest resources. The CFUG is a legal and autonomous body composed of representatives from all households that use the forest. An executive committee is formed either through consensus or, if consensus is not possible, through an election. Most other decisions within the CFUG are also made on a consensual basis. The group prepares and implements a forest management plan (Pandey & Paudyal, 2015). Community-based forest management, in its modern form, has been practiced for nearly four decades and is widely regarded as a success story in forest restoration and in delivering benefits to local residents (Fischer, 2012).

Community school management

Local institutions for public service delivery, such as schools and hospitals, are managed with the participation of service users from the community. For example, schools are managed by school management committees formed at the community level. The seventh amendment to the Education Act in 2002, along with the subsequently issued Education Regulations in 2002, transferred the management of schools to School Management Committees (Bhattarai, 2022). These committees are composed of parents, WC members, school teachers, intellectuals, and the headmaster, thereby ensuring the participation of parents, teachers, students, LG officials, and community leaders. SMCs are responsible for developing and implementing school improvement plans, as well as monitoring and evaluating their implementation. They also facilitate the involvement of these stakeholder groups in decision-making, problem-solving, resource mobilization, and overall school improvement (Puri & Chhetri, 2024).

Participatory development and construction

The involvement of citizens in the development and construction of small-scale local infrastructure has a long history in Nepal. The Public Procurement Act, 2007, and Public Procurement Regulations, 2007, allow small-scale projects below a certain financial threshold to be implemented by UCs. A UC is composed of citizens selected from among the direct beneficiaries and local residents. These committees contribute a portion of the project cost, while the majority of funding comes from the government budget. Today, a significant portion of the government's annual development plan is implemented through

such UCs formed at project sites. These committees are generally ad hoc in nature and are dissolved upon the completion of the project and financial settlement. However, some continue to operate to oversee maintenance and operation. Local roads, drinking water systems, irrigation canal extensions, and drainage projects are commonly implemented through UCs. Therefore, UCs serve as an important avenue for citizen participation in local development (Rai, 2020).

Public hearing and other participatory evaluation mechanisms

The Good Governance (Management and Operation) Act, 2008, mandates government offices to organize public hearings to ensure that their actions are fair, transparent, and objective, and to address the legitimate concerns of citizens and stakeholders. Similarly, the *Good Governance (Management and Operation) Regulations, 2008*, require such hearings to be held at least once every four months. During these hearings, offices are expected to report on the efforts made to fulfill commitments previously made to the public. The hearings must also include information on public services currently provided or to be provided, address problems, complaints, or grievances, and offer detailed updates to relevant stakeholders and interested individuals about plans, projects, programs, and budgets to be implemented in the current fiscal year. LG are also legally obligated to conduct such public hearings. Additionally, some Non-governmental Organizations (NGOs) have been found to conduct similar hearings for specific projects. Moreover, it is necessary to carry out a public hearing with the people affected before starting any development projects in any locality. Other participatory review and audit practices, such as public audits and social audits, are also in use (KC & Paudel, 2025).

Participatory planning at local governments

LG has to prepare and implement periodical, annual, mid-term, and long-term plans within its jurisdiction. Broader, inclusive, and maximum participation of citizens and stakeholders must be ensured during the formulation and implementation of plans (Local Government Operation Act, 2017). The annual budget and planning process must ensure the participation of all sectors, sections, and communities of society (National Planning Commission, 2022). Annually, the WC conducts planning or project selection meetings in each neighborhood based on a schedule, ensuring convenience for all attendees. Identifying and prioritizing needs, selecting projects and programs at the community level, and representing all classes and communities must be ensured with the guiding principle that

“no one is left behind.” The **neighborhood-level planning meetings** are open to all residents of the neighborhood and generally informal in nature (Bhusal, 2019).

The aforementioned mechanisms are examples of PGMs through which citizens directly engage in local governance processes. These PGMs are predominantly supply-driven—initiated by LGs in accordance with policy mandates—where citizens are invited to participate within structured spaces. It is important to distinguish this type of participation from women’s engagement in informal institutions, NGOs, political parties, elected government bodies (such as legislatures or executive councils), protests, or collective lobbying efforts, which fall outside the scope of this study. While the initial focus of this research was on women’s participation in neighborhood-level planning meetings, preliminary fieldwork necessitated a revision of the study’s scope¹. Accordingly, the study now concentrates on three key mechanisms aligned with the annual development planning cycle of LGs—each legally and normatively required to be participatory in nature. These include: (i) participatory plan formulation (commonly conducted through neighborhood-level planning meetings), (ii) participatory execution (primarily implemented through UCs), and (iii) participatory review (mainly via public hearings).

2.4 A brief on women’s status in Nepal

Nepali society has long been characterized by patriarchal norms, where men traditionally hold dominant positions in both private and public spheres. Women’s access to key resources that determine personal capacity—such as education, healthcare, economic opportunities, and decision-making power—remains lower than that of men. Gender inequality also persists in asset ownership, mobility, and representation (Mahat, 2003). According to the latest national census, the male literacy rate stands at 83.6%, while the female literacy rate is only 69.4% (National Statistics Office, 2025). Deep-rooted gender norms manifest in son preference in education, labor exploitation of young girls, gender-based violence, and negative societal attitudes towards women (Mahat, 2003). Nonetheless, Nepali women have a long history of resisting patriarchal structures across social, political, and economic domains (Upreti et al., 2020).

However, this picture is changing. Recent political reforms, growing educational attainment, expanding access to information technologies, and progressive legal and policy interventions are gradually transforming gender relations. Gender dynamics are shifting

¹ See chapter IV: Methodology; Section 3.2.1 “Change in the scope of the study” for detail.

alongside broader sociocultural and economic transformations. Political spaces have opened, female mobility has increased, and gender equality and social inclusion (GESI) have become central themes in national discourse—fueled in large part by Nepal's evolving political economy. Changing male roles, particularly in household responsibilities, and growing male support for gender equality are emerging trends in contemporary Nepali society (Adhikari & Sharma, 2022).

Encouraging shifts in public attitudes are also visible. A 2022 national survey reported that over 90% of respondents supported women's participation in politics and in the workforce. Furthermore, more than 80% rejected traditional gender stereotypes such as son preference, male superiority in employment, and male authority to discipline women. Perceptions supporting women's control over income, mobility, and household decision-making are steadily increasing. Importantly, over 75% of respondents expressed confidence in women's leadership, suggesting that leadership competence is increasingly seen as independent of gender (School of Arts, 2023).

One of the most transformative yet complex trends in recent decades is male outmigration for employment, which has impacted women in multiple ways. While it has increased women's workload in household management and agriculture, it has also created opportunities for women to assume more visible roles in family and community decision-making. This shift has begun to blur the rigid boundary between the private and public spheres for women. However, as research shows, women's decision-making authority is often confined to operational matters rather than strategic ones (Gautam et al., 2023; Maharjan et al., 2012).

The post-2008 political restructuring and the promulgation of the 2015 Constitution ushered in a new era of women's inclusion in governance and public life. A range of affirmative action policies—including reserved quotas—have ensured substantial female representation in local and provincial bodies. Today, women hold more than 40% of local assembly seats and over 34% in provincial assemblies. While this numerical representation marks a significant achievement in a relatively short time, concerns persist about the quality and meaningfulness of women's participation. Studies indicate that effective participation varies across geographical regions and ethnic communities (Acharya & Zafarullah, 2022; Hamal, 2023). Nonetheless, Yadav (2024) contends that quotas have broader social impacts beyond political inclusion, including improving women's public credibility, increasing

societal acceptance of women in leadership, and paving the way for future generations of female leaders.

As a sum up, it is relevant to quote Upreti et al. (2020):

The women of Nepal are still not freed from the burden of living in a patriarchal society. Too often their capacity to participate in Parliament at quota levels has been questioned, rather than holding up for scrutiny the forms of discrimination and lack of opportunities that have underprepared women for equal participation. The influence of women in decision-making and constitution-building process remains limited. Though women have become successful in acquiring higher positions (e.g., President of Nepal, earlier Chief Justice of Supreme Court and Speaker of the Parliament), achievements not even possible to imagine two decades ago, the achievements attained thus far are not enough. Continued, concerted action among all actors is essential (P.90).

Chapter III: Literature Review

This study was conducted to explore the factors influencing women's participation in participatory governance mechanisms (PGMs) practiced by LGs in Nepal. A preliminary review of academic databases revealed that focused research on this specific topic is limited, particularly within the Nepali context. Therefore, the literature review draws on broader studies related to citizen participation in participatory governance, women's involvement in public and collective decision-making processes, and women's empowerment from both Nepal and international contexts. Relevant sources were identified through targeted searches using keywords such as citizen participation, participatory governance, women in decision-making, gender and governance, and women's empowerment in Nepal. This comprehensive approach helped to contextualize the study and build a foundation for analyzing the various factors that shape women's participation in PGMs.

3.1 Exclusion and gender in participatory local governance

Citizen participation broadly refers to the involvement of ordinary people in the processes of governance (Baum, 2015). Participatory mechanisms are widely recognized as instrumental in enhancing democratic quality and state performance by facilitating access for historically marginalized groups in public decision-making (Wampler, 2007). The right to participate in decisions that affect one's life is fundamental to democratic citizenship. In practice, participation is often justified by its potential to generate context-specific knowledge, foster a sense of ownership among stakeholders, legitimize public decisions, and mediate conflicts by bringing diverse interest groups into deliberative engagement (Baum, 2015).

The literature on citizen participation has largely centered on the local level (Abas et al., 2023; Speer, 2012) where PGMs tend to be more effective due to the smaller scale and closer proximity to citizens (Lassen & Serritzlew, 2011). LGs, often established as part of decentralization reforms, are intended to foster increased citizen involvement in governance and development (Mansuri & Rao, 2013; Speer, 2012).

Crucially, the normative objective of participatory democracy is to ensure inclusive governance that mitigates social, economic, and political inequalities (Mansuri & Rao, 2013). If particular groups are systematically excluded or marginalized within participatory processes, these mechanisms risk reproducing existing power hierarchies rather than

enabling political empowerment and transformation (de Soysa, 2022). Nevertheless, as Baum (2015) notes, participatory spaces are frequently inaccessible to historically excluded populations, who often exert little to no influence on decision-making processes. Conversely, influential elites may dominate these arenas, consciously or unconsciously, leveraging their socio-economic advantages—such as education, income, and institutional knowledge—to shape outcomes in their favor.

As Cornwall (2008) insightfully asks: who participates, who is excluded, and who opts out? Self-exclusion, once assumed to be a matter of individual choice, is increasingly understood as a reflection of broader structural inequalities. Decisions not to participate often stem from complex interplays of socio-cultural, economic, political, and personal factors. Hence, self-exclusion constitutes a form of social exclusion that must be acknowledged and addressed.

To promote women's engagement in public decision-making, various strategies have been employed globally. Eckert et al. (2017), through a review of over 400 studies, identify four main strategies: affirmative action through quotas, the use of social media to amplify women's voices, targeting women as beneficiaries of public programs, and mobilizing women through their intersecting identities. However, Allegretti and Falanga (2016) highlight a persistent research gap concerning the intersection of participatory governance and gender. Their review of participatory budgeting (PB) cases reveals limited attention to how participatory mechanisms intersect with gender mainstreaming efforts, pointing to a need for more gender-sensitive approaches in participatory governance research and practice.

A deeper understanding of these influencing factors is necessary for strengthening women's participation in governance. This review synthesizes the key findings from relevant literature to examine factors of women's participation in PGMs within Nepal's evolving local governance landscape. It sets a stage for the development of research assumptions and a conceptual framework that guides further steps of the study.

3.2 Factors Influencing women's participation

A complex venture

Institutional, cultural, and social factors shape the agency and ability of citizens to participate (Fraune, 2015). Family, religion, and society are three broad thematic areas of influence in the case of women's participation. It is impossible to separate the

interconnections between these factors (Begum et al., 2024). Non-participants may have several reasons not to participate. These reasons are primarily social, economic, family-related, cultural, and idiosyncratic (Cornwall, 2008). Similarly, a study on the participation of women in district councils in Malawi showed that multiple and interrelated political, socio-cultural, and economic factors influence women's participation (Hussein, 2021). According to Mansuri & Rao (2013) participants in civic activities tend to be wealthier, more educated, people from higher social status (by caste, ethnicity), male, and more politically connected than non-participants. Capture also tends to be greater in communities that are remote from the centers of power, which have low literacy, which are poor, or which have significant caste, race, and gender disparities. A review of some literature in this study depicts that the factors influencing women's participation are the manifestation of inequalities prevalent in society, especially those related to gender; these factors are interrelated and interconnected to each other. Therefore, the study on women's participation should have taken a broader view of all these factors, which are interconnected in several feedback loops, instead of focusing on a few handpicked factors.

Perceived value

What value does a particular participatory mechanism hold for the citizens? The perceived cost of participation, such as time and transportation costs, risks of being co-opted by the government, and so on, should be outweighed by perceived benefits, such as the confidence of having real decision-making power (Speer, 2012). According to Eckert et al. (2017) risks associated with participation, such as violence, safety issues, conflict with men, and intimidation by men, determine the participation of women. On the other hand, political involvement is seen as costly in terms of time, energy, and career impact, but it increases social visibility. Social participation offers relational benefits with fewer perceived costs (de Piccoli & Rollero, 2010). A lack of perceived efficacy may be a significant barrier to participation (Anthony et al., 2004). From this discussion, it can be assumed that the participation level of women will be higher if their perceived benefits compensate for their perceived costs and risks.

Support system

The presence of a support system is critical to enhance women's participation. The support system can exist or be developed in the family, community, and government. The support can be legal, psychological, financial, emotional, moral, and physical, too (Hajdarowicz, 2022). Among these supports, family support is the most critical because family influence

has pervasive control over the involvement of women. Due to household work and a disproportionate share of domestic chores, women are short of time. So, recalibrating women's domestic labor is necessary to generate time for participation (Begum et al., 2024). The support can be anything that facilitates women's participation; for example, matters such as the availability of childcare have an essential effect on (Anthony et al., 2004). Support can also be provided by NGOs existing in the locality. However, in a rural community in Ghana, NGOs nominated mainly influential men in order to achieve their targets smoothly; this excluded women from the public domain (Gyan & Mfoafo-M'Carthy, 2022). This shows that if careful consideration is not given, the support system can interact with existing structural inequality to exacerbate it further.

Policy and public officials' motivation

A strong support system can be assembled by the government through legal arrangements, affirmative actions, and incentives. For such a support system to be developed requires motivated leadership and the support of a higher level of government (i.e., central government or provincial governments supporting LGs) because the intervention must include hitherto excluded groups (Mansuri & Rao, 2013). An extensive review of the literature presented that both public officials and citizens should be motivated and able to implement participatory governance (Speer, 2012). However, in most cases, the leaders and organizations who possess the resources and authority are disinterested in promoting social justice through participatory governance arrangements. Nevertheless, there is also evidence of strongly motivated organizations promoting participation in governance, for instance, the Workers' Party promoting participatory budgeting in Porto Alegre, Brazil, in the 1990s (Fung, 2015). A case study of Cotacachi municipality in Ecuador showed that a highly motivated LG leader (a mayor) could bring change (Allegretti & Falanga, 2016). Cornwall (2008) also stresses the importance of political commitment to make citizen participation inclusive. Therefore, LG leadership plays a crucial role in women's participation, whether they are motivated and committed or not.

Implementing a participatory mechanism cannot ensure that the participants have a voice. The participants should be **empowered**; for this, broader institutional reforms, strong political commitment, and building and supporting collectivities that can apply pressure are required (Cornwall, 2008). According to Cornwall (2003), the transformation requires addressing the more profound social, cultural, and institutional barriers that limit women's power and agency. Her argument underscores the need for "gender-sensitive participatory

practice” that goes beyond superficial inclusion. It calls for strategies that challenge entrenched inequalities and empower marginalized groups, ensuring participatory mechanisms fulfill their transformative potential. Participation is not a guarantee of having a voice.

Religious, societal, and cultural norms

Religious and societal norms are crucial in determining women’s family and community roles. In a study of women’s participation in the co-management of forests in Bangladesh, Begum et al. (2024) found that women are discouraged from participating in a society dominated by the male patriarchy. Religious and social norms and taboos also exacerbate the situation by social expectations towards females with limited public roles. The more significant challenge is to gain social acceptance of women’s participation. In rural communities of Ghana, too, women are not accepted as leaders, and the community doesn’t see any value in their participation (Gyan et al., 2022). In Malawi, socio-culturally, both women and men can’t accept women in leadership positions because women aren’t believed to take the leadership role due to cultural norms. Women need permission from their husbands to participate in public activities (Hussein, 2021).

Social and cultural norms do not prioritize women’s participation because gender roles and stereotypes significantly shape perceptions of capabilities and leadership, often deterring women from political participation (de Piccoli & Rollero, 2010). Suppose the community doesn’t see the value of women’s participation. In that case, it will be challenging for women to be involved in governance processes because the value of participation for the community is crucial, Cunningham (1972) says, to determine the motivation of citizens and state towards participatory governance practices.

Inequality between men and women, generated by socio-cultural norms, transcends all dimensions of society. For instance, the political playfield is uneven due to male dominance, i.e., the lack of acceptance of women in leadership by both men and women. In Malawi, Africa, the political environment is intimidating to women because it is full of corruption, hate speech, violence, and harassment (Hussein, 2021). In a study in rural communities of Ghana, (Gyan et al., 2022) found too much control of the men over the process.

Role of women in house

In most societies, women are assigned care responsibilities such as childcare, care of the elderly and family members with disabilities, household chores such as cooking, cleaning, dishwashing, firewood collection, and fetching water, roles in the farms such as fodder

collection, crop-plantation, etc. Since the traditional gender stereotypes assign most of the household chores to women, such a load of family responsibilities makes it practically impossible for women to get out of the home and work in the public domain in rural communities of Ghana (Gyan et al., 2022; Gyan & Mfoafo-M'Carthy, 2022). Therefore, Eckert et al. (2017) point to the risk of increasing workload for women when they participate in public processes.

Family responsibilities are closely related to the *type of family structure*. For example, factors like being in a *joint or nuclear family*, presence of mother-in-law and other adult female members in the family, presence of adult male members in the family, whether these members share the workload or not, women have kids or not, the kids are grown or still young, made a difference to women's participation in community forest management activities in a village of western Nepal (Gautam et al., 2023). Hence, the family plays the most immediate role. Family influence has pervasive control over the involvement of women (Begum et al. 2024). Therefore, family support has been discussed as one of the major support systems for women's participation above.

Gender roles and stereotypes are very deeply entrenched in society, and not only males but also women deeply believe and accept gender roles and behave against women who are active in the public domain. This phenomenon is reported in rural communities of Ghana as 'lateral oppression (Gyan & Mfoafo-M'Carthy, 2022).'

Capacity or power

To break the structural barriers set by social and cultural norms, such as gender roles and stereotypes, and an uneven public or political playfield, women must possess power. Arnstein (1969) in her seminal article stresses the power of citizens to increase their influence in participatory mechanisms. In her view, power is obtained from *access and control of the resources, the capacity of the citizens to influence, and the level of their organization, i.e., how well the citizens have formed collective interests and power*. Several scholars have analyzed the issue of citizen participation regarding the power to participate and influence. If careful consideration is not applied, according to Kaur & Jairath (2015) the participatory forums can multiply the existing power relations and dynamics rather than redistribute power. In their view, 'participatory exclusion' and 'multiplication of power and control' are the most serious challenges to participation. Due to the 'entrenched local power structure,' women are 'unable to give voice to their interests' (p.30).

Most citizen participation or empowerment scholars agree that citizens should have a minimum level of power to participate. How can the unrepresentative small group, the elites, dominate the participatory space? One of the significant factors is their capacity (skills and knowledge). Bringing other groups to parity requires empowering them by building their capacity (Einstein et al., 2019). Similarly, Cornwall (2008) advocates for the empowerment of participants to make the participatory mechanisms effective and meaningful. Then, what gives women the power to involve, speak, and influence? What empowers them? How do they develop their capacity? These are the crucial questions in a study of women's participation.

Education, knowledge, and skills

As a source of power or capacity, education, knowledge, and skills are widely discussed in the literature on citizen participation. In rural communities of Ghana, the lower level of education and lack of English language skills are two significant impediments to women's participation in community development activities (Gyan et al., 2022). A low level of education is responsible for the lack of necessary knowledge, skills, and **confidence** to speak in front of men in public spaces in Malawi (Hussein, 2021). Educated women tend to participate more in community forest management in a community of western Nepal because of more **awareness** and knowledge (Gautam et al., 2023). Due to possibly lower levels of **social networks** and engagement, women may not have up-to-date **information** and understanding of the issue being dealt with by specific participatory mechanisms (Anthony et al., 2004). Therefore, *capacity building and empowerment through education, information sharing, and skills development* are necessary to make women's participation meaningful. For example, the involvement of women in participatory budgeting after their capacity building improved the effectiveness and impact of the budget implementation in the Cotacachi municipality of Ecuador (Allegretti & Falanga, 2016). It is not an effective agency but a 'transformative agency', which is required for empowerment. Effective agency in gender-assigned roles and responsibilities, e.g., homemaker or caregiver, doesn't transform the prevalent power relations (Kabeer, 1999).

Financial factor

Their financial status also determines the power or capacity of women. Do they have their income? Are they financially independent? Do they have control over the family's financial resources? Mansuri and Rao (2013) connect the financial status with the participation level. Their review pointed out, "Higher opportunity cost of participation for poor ... the poor

often benefit less from participatory processes than do the better off, because resource allocation processes typically reflect the preferences of elite groups (P.5).”

In rural communities of Ghana, women hesitate to participate in community development activities due to the ‘feminization of poverty.’ The lower level of income and possession of resources obstruct women from acting freely and actively in the community domain (Gyan & Mfoafo-M’Carthy, 2022). Similarly, in Malawi, women fall behind men in politics because of the lack of economic resources required to spend on election campaigns and their dependence on their husbands for money (Hussein, 2021). Financial resources determine not only capacity but also status, which affects women's choices. For instance, in participatory budgeting that took place in Porto Alegre, Brazil, many women, mainly belonging to lower social status, tended to believe and promote the conventional gender role that it is the men’s job to make decisions, not the women’s (Allegretti & Falanga, 2016).

Experience

Experience of involvement in public life and community activities enhances women's knowledge, skills, and confidence. So, the women with an experience of participation tended to participate more than or more effectively than women without experiences (Gautam et al., 2023). Experience in other aspects of public life also can be helpful. For instance, some leading women engaged in some organizations enthusiastically participated in participatory forums and encouraged other women to participate (Allegretti & Falanga, 2016). Expertise and skill are developed after multiple participations mutually reinforcing each other (Einstein et al., 2019). However, if previous experiences aren’t pleasant or turn out to be meaningless and ineffective to women, they may not want to participate; this phenomenon is called ‘participation fatigue (Cornwall, 2008).’

Affirmative action

Affirmative action is widely used as one of the major strategies to empower women in participatory mechanisms (Eckert et al., 2017), mandatory representation of a certain number or proportion of women, popularly called quota system (Hamal, 2023). The number of women participating in community activity matters to a greater degree because it was found that the confidence level was increased when they had more numbers (Begum et al., 2024). So, a quota system to increase the number of women in community forums is essential at the beginning to give them confidence.

Many scholars adore such quota systems. For example, Hussein (2021) argues that a lack of affirmative action to ensure specific seats for women is a significant barrier to women's

participation. Affirmative action, such as quotas, increased the quantitative presence of women in participatory budgeting (PB), backed up qualitatively by capacity-building activities (Allegretti & Falanga, 2016). Participatory forums open to all can be exclusionary if affirmative actions are not taken to include hitherto non-participants (Einstein et al., 2019). However, increasing the number may not be sufficient to empower women to deliberate and influence effectively in public participatory mechanisms.

According to experiments carried out by Karpowitz et al. (2012) and Mendelberg et al. (2014), the number of women or the proportion of women who interact with the decision rule, whether it is majority rule or unanimous rule. When the decision is taken by votes of the majority, i.e., majority rule, the number of women matters; increasing their number increases their influence level. In contrast, when the decisions are taken unanimously in the consensus of all participants, increasing the number can even harm women's participation level. Similarly, the quota system can interplay with the existing patriarchal structures and norms to exacerbate gender hierarchies further (Hamal, 2023).

Institutional factors

Institutional factors such as the design of participatory mechanisms, rules, and procedures of participation and decision-making, provision of incentives, etc., greatly influence the participation level. An attractive participatory project, for example, one with a large amount of money involved, can attract the better-off people, excluding the poor. Similarly, projects that require some contribution from beneficiary groups can repel poor people (Mansuri & Rao, 2013). Therefore, careful consideration should be given to the design of the participatory mechanisms. Mansuri and Rao (2013) also describe participatory projects as a) supplied: the initiatives of outsiders and b) induced: the community's initiatives. Their review finds that induced projects, with careful support and supervision of agencies such as the government, tend to be sustainable.

The **goals and objectives** of the participatory mechanism are also crucial. Do the goals include the aim of minimizing social inequality? In induced projects, what are the organizers' priorities, mainly the government and sometimes non-governmental agencies such as Non-profit Organizations (NPOs) or NGOs, and how would they like it to be organized (Allegretti & Falanga, 2016)? A Literature review by Eckert et al. (2017) showed that one of the strategies used to enhance women's participation is to aim for women to participate or benefit from social programs and projects. Therefore, Cornwall (2008)

advocates for broader institutional reforms to ensure the voice of women in participatory mechanisms.

Besides the goals, the **style of public meetings** also plays a role in the success or failure of the meetings. *Informal meetings*, rather than mandated public meetings with mundane routine methods, provide opportunities for rigorous conversations and ease the tensions between participants, thereby giving them a better chance of success (McComas, 2001). Women give more importance to the open exchange of ideas in meetings than being based on an expert's opinion or scientific evidence. This shows women's preference for open, informal, and casual settings in participatory forums (Anthony et al., 2004).

Incentives also play an essential role. Participatory mechanisms have a high risk of being dissolved when the pecuniary or material incentives provided to participants are withdrawn (Mansuri & Rao, 2013). Women are highly motivated to participate if there is any financial reward for them or their families. The reward can be direct, such as a meeting allowance, and indirect, such as participation in the conservation of forests, which is essential for families dependent on the forest (Begum et al., 2014). Apart from providing incentives, the availability of *facilitation* for discussion is no less critical. Because of the gender gap in socio-economic indicators, women have less knowledge and skills than men, so they place importance on the presence of a 'neutral facilitator' who would provide the basic information required before or during the meeting. This knowledge helps women understand the issue and has some influence on decision-making (Anthony et al., 2004).

Personal factors

Personal characteristics or attitudes are also responsible for participation or non-participation (Begum et al., 2024). A low level of **self-esteem** is one of the significant barriers to women's participation. For instance, women doubt their ability and their right to speak and present in public, deterring them from participation or effective performance in participation (Gyan & Mfoafo-M'Carthy, 2022). However, when asked about this, women themselves may not acknowledge it. For example, in another study in Ghana, where Gyan is still the lead author, in a quantitative survey, she found that low **confidence** levels and lack of **information** are insignificant in influencing the participation of women (Gyan et al., 2022).

Expectations of women from participation can be different from those of men. In participating in forest co-management in Bangladesh, women are motivated by the desire

to secure income, a sense of self-worth, build social support networks, future financial support, and economic benefits such as monetary support from co-management and alternative income sources. These factors directly motivate or indirectly facilitate the motivation to participate. The most important determinant was a **sense of responsibility** to conserve the forest for future generations (Begum et al., 2024).

Other factors

Besides the abovementioned factors, several other factors influence women's participation in public decision-making processes, e.g., public meetings. For example, in rural communities of Ghana, the use of the English language as the **language** of deliberation made women, who didn't have a basic command over English due to their lower level of education in comparison to men, deter away from public meetings (Gyan & Mfoafo-M'Carthy, 2022).

Marital status played a significant role in determining women's participation in Porto Alegre, where single or divorced women tended to participate more than married women because the former did not need their men's permission to participate (Allegretti & Falanga, 2016). **Safety and security** issues are also important because the mental and physical harassment of participant women discourages them and other potential participant women (Begum et al., 2024). *Harassment* of women active in the public domain and household chores keep them busy at home. For instance, in the local politics of Malawi, women who are active in public life are called 'mahule', a local word for prostitutes (Hussein, 2021). **Self-employment** gives women confidence in public meetings, so their participation level may be more effective than other women. Still, they are so busy that they may not get time to participate (Gautam et al., 2023).

Importance of context

In the study of citizen participation, context is a very important factor. Mansuri and Rao (2013) mentioned:

(...) local inequality, history, geography, the nature of social interactions, networks, and political systems all have a strong influence. The variability of these contexts is sometimes so large, and their effect so unpredictable, that projects that function well usually do so because they have strong built-in systems of learning and great sensitivity and adaptability to variations in context. (p.12)

The context is further essential when we study gender differences in citizen participation because institutional, cultural, and social factors shape the agency and ability of citizens to

participate (Fraune, 2015). According to Barnes et al. (2003), factors should be analyzed in the context of material and cultural practices.

Heterogeneity or homogeneity of the community should be considered while studying women's participation, especially in the Nepalese context. South Asian communities are highly heterogeneous, and so are Nepali communities. Lack of attention to heterogeneity and hierarchy in communities has very frequently been responsible for the failure of many participatory development projects (Kaur & Jairath, 2015). Communities of Nepal are highly heterogeneous in terms of geography, ethnic groups, income, caste, and other factors, and so are the women. Women are not a homogeneous group; they are a highly heterogeneous group (Hamal, 2023) with different incomes, education, caste, capacity, power, and participation levels.

Another important context is government policies. Governments also implement gender equality policies, which are, in most local contexts, isolated from citizen participation policies. Gender equality policies and citizen participation mechanisms, separately implemented, cannot produce synergies (Allegretti & Falanga, 2016).

3.3 Summary of literature review

The literature review revealed that a **wide range of factors** influence women's participation in PGMs, spanning from individual-level to broader structural dimensions. These factors are intricately interconnected, often forming complex feedback loops that shape participation outcomes. While studies from various parts of the world indicate that many of these factors—such as education, confidence, social norms, institutional support, and gender roles—are universal in nature, their specific influence and the mechanisms through which they operate differ across contexts and types of participatory mechanisms. Importantly, the interplay of these factors in particular settings can give rise to unique and context-specific phenomena that significantly impact participation. Identifying and understanding such phenomena is essential for crafting effective policy interventions and fostering citizen-led initiatives to enhance women's engagement. Therefore, any analysis of influencing factors must consider their interrelationships and contextual relevance to accurately interpret participation dynamics.

The literature review reveals a significant **gap in research** on women's participation in PGMs globally, with the gap being even more pronounced in the context of Nepal. For example, Gyan et al. (2022) and Gyan & Mfoafo-M'Carthy (2022) studied women's

participation in rural Ghana’s community processes but focused on context-specific, limited factors. A study by Begum et al. (2024) explored a broader range of personal and societal factors, but within the scope of community forest management. Hussein’s (2021) study examined contextual factors in women’s participation, but in relation to political elections. Other studies found in databases like JSTOR and Web of Science primarily focus on women’s roles in politics, labor, natural resource management, or women-only groups. Very few address women’s participation in broader community-level participatory governance mechanisms. In Nepal as well, most existing literature centers on women’s electoral participation (Hamal, 2023; Upreti et al., 2020; Yadav, 2024) or involvement in specific sectors such as forestry (Gautam et al., 2023) or cooperatives. As a result, there is a clear research gap on women’s participation in local participatory governance mechanisms, despite widespread global and national advocacy for inclusive decision-making. This study, therefore, presents a timely and unique effort to fill this critical gap.

3.4 Conceptual framework

Based on the literature review, it is assumed that several factors—ranging from individual to structural—shape women’s participation in PGMs within LGs of Nepal. However, when these factors interact with one another and with the specific socio-political and cultural context of Nepal, they generate unique patterns and phenomena in women’s participation. These context-specific dynamics highlight that participation is not solely determined by isolated variables but by the complex interplay among multiple influencing elements. Understanding this nuanced interaction is crucial for uncovering the deeper realities of women’s engagement in governance and for formulating more effective, context-sensitive interventions. The following conceptual framework has been developed based on the literature review, which guides the further decisions and actions related to data collection and analysis methods (Figure 1).

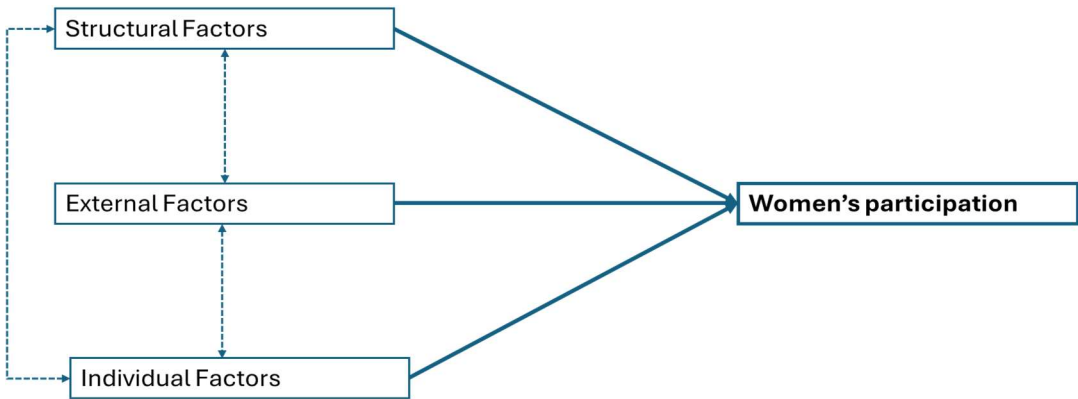


Figure 1 Conceptual framework for the study

Most existing literature categorizes influencing factors into two broad levels: individual (personal) and structural (external to the individual). However, this binary distinction is overly simplistic and does not sufficiently clarify how these factors operate or interact. To address this limitation, this conceptual framework (Figure 1) proposes a more nuanced analysis by distinguishing three interconnected levels: individual, external, and structural. The individual level includes personal characteristics, traits, capacities, and interests—elements over which a woman has the greatest, if not complete, control. The external level encompasses factors related to family, other people, communities, organizations, and social processes that exist outside the individual’s direct control. Finally, the structural level refers to the overarching context or environment—such as cultural norms or political systems—that shapes and constrains both individual and external factors. These levels are not isolated; rather, they influence one another, with structural transformation being particularly resistant to rapid change. This three-tiered framework allows for a deeper understanding of the mechanisms through which different factors influence women’s participation.

Chapter IV: Methodology

Using a qualitative research design, the study was conducted in Lalitpur Metropolitan City (LMC) of Nepal. Interviews and focus groups (FGs) were carried out with women to explore the factors influencing women's participation in the participatory governance mechanisms available in the LG. Narrative data obtained after interviews and FGs were analyzed using the thematic analysis method. This chapter details the research design, the sampling methods, data collection procedures, and the analysis methods.

4.1 Selection of the research design

The selection of the research method mainly depends on the nature of the research questions. Qualitative methods, such as interviews and FGs, were used in this research because 'what' and 'how' questions are best answered by qualitative research (Silverman, 2017). Similarly, qualitative methods helped to grasp the meanings women give to the participatory planning processes in LG and how their understanding affects their actions because the substantial strength of qualitative research is the ability to interpret "local processes, meaning, and contextual influences in particular settings or cases." (Maxwell, 2013, p.99).

Similarly, Silverman (2017) states that qualitative methods are appropriate when a researcher is interested in "how social phenomena arise in the interactions of their participants." So, in this research, the qualitative methods helped the researcher to understand and interpret how the participatory processes take place in LGs, how ordinary women participate in these processes, and what factors influence their participation. Also inspired by the five theoretical and three practical goals of qualitative research presented by Maxwell (2013), qualitative methods were chosen for this study.

4.2 Study area

The qualitative data were collected from Lalitpur Metropolitan City in central Nepal. LMC was selected as a study site due to its distinct combination of institutional capacity, ethnic diversity, and accessibility, which together provide a meaningful context to explore women's participation in participatory governance. As one of Nepal's largest municipalities, adjacent to the capital city, LMC has a large and heterogeneous population. It includes a diverse ethnic composition—such as the native Newar community in the urban core, migrant communities in the periphery, and neighborhoods that are either mixed or dominated by a single ethnic group—creating a unique social landscape that reflects Nepal's broader ethnic and cultural dynamics. This diversity offers valuable insights into

how participatory practices unfold across different social settings. Furthermore, LMC has been recognized for its relatively responsive and accountable local governance. In the fiscal year 2023/24, it scored 93.5% in the Local Government Institutional Self-Assessment (LISA),² placing it 101st among 753 LGs, with a full score (100%) in the social inclusion category—one of only 131 LGs to achieve this (MoFAGA, 2025). While not the top performer overall, its governance performance is considered among the best. Conversations with experts also identified LMC as a municipality that promotes participatory practices at the grassroots level. Additionally, the accessibility of elected officials and bureaucrats, combined with logistical ease for fieldwork, made LMC a strategic and practical choice for this study.

The area of this city is 36.52 square kilometers. According to the National Census 2021, the total population is 294,098, of which 50.11 % are women, whereas the total number of households is 77,159³. The LMC is surrounded by Kathmandu Metropolitan City (KMC) and Kirtipur Municipality to the west, Mahalaxmi Municipality to the east, KMC to the north, and Godavari Municipality to the South (Lalitpur Metropolitan City, 2025). Administratively, it is divided into 29 wards.

4.2.1 Change in scope of the study

The primary objective of this research was to explore the factors that influence women's participation in the annual development planning process of LGs in Nepal. This objective was developed based on a review of existing literature, legal provisions, and policy documents that emphasize citizen participation in annual development planning and local government budget preparation processes.

The research focused particularly on neighborhood-level meetings, which are supposed to be organized during the early stages of the planning cycle by WCs. These meetings are ideally open to all citizens and are intended for intensive deliberation on the development needs of the locality. They also serve to identify and document proposed development projects, which are then forwarded to the WC for further screening and decision-making.

² LISA (Local Government Institutional Self-Assessment) is a national tool used by Nepal's Ministry of Federal Affairs and General Administration (MoFAGA) to assess the institutional performance of local governments across various domains, including governance, service delivery, and social inclusion. For details, browse <https://lisa.mofaga.gov.np/home>

³ See Appendix I for some key demographic and socio-economic indicators of the study area.

However, preliminary data and information revealed a different reality. In LMC, such neighborhood-level meetings are rarely held. Some wards reportedly organized ward-level meetings, but this practice was not consistent across all wards. Even in wards where meetings were said to occur, relevant documents such as attendance sheets, minutes, and reports were unavailable. When ward secretaries were asked, they responded that the responsibility for such meetings lies with elected officials (ward chairpersons and members), so they had limited information. Conversely, elected officials stated that neighborhood discussions were conducted informally, with key points noted in personal diaries rather than formally documented. They also referred the researcher back to ward secretaries for any available records. Conversations with local women confirmed that such public meetings are not widely practiced.

Instead, during the planning phase in most wards, citizens' needs, demands, and proposals were collected through written applications. In one ward, the researcher accessed a folder containing all applications submitted by citizens and local institutions for the previous fiscal year's budget. According to the ward secretary, these applications were reviewed by the WC during budget preparation. However, it cannot be assumed that the applications were the sole source of ideas. The ward secretary explained that elected officials are in regular contact with residents and thus have a strong understanding of the ward's development needs, making their perspectives highly influential. Nevertheless, the practice of inviting, collecting, filing, and reviewing citizen applications was common in most wards.

According to a former female ward member (elected through the women's quota), in the years following the first local elections under the 2015 Constitution (held in 2017), neighborhood and ward-level planning meetings were initially conducted. However, they proved unproductive due to groupism and internal conflicts. In her view, these meetings created unrealistic expectations among citizens and sometimes led to tension, placing elected officials in difficult positions with voters. As a result, the practice of public meetings was discontinued in favor of the application-based approach. She believed that, despite its limitations, the application system remains participatory, as it is open to all citizens and institutions within the ward.

Following budget preparation, most small-scale projects were found to be implemented through 'user committees'. According to the *User Committee Formation, Mobilization, and Management Procedure, 2021*, a 'user' is defined as a resident of the project

implementation area who directly benefits from the project. A UC, consisting of 7–11 users, is formed to carry out, operate, manage, and maintain the project. The committee must be formed during a public meeting at the project site and must be inclusive in nature. For example, 33% of the members must be women, and at least one of the three key positions (chairperson, secretary, or treasurer) must be held by a woman. According to a ward secretary, most local-level projects—such as small road constructions, drainage work, school and health post maintenance—are implemented through such committees. These committees are ad hoc and are dissolved upon project completion, including paperwork and financial settlement. However, since LGs implement a significant portion of their budget through these UCs, they represent an important participatory governance mechanism in the planning cycle.

Another important stage in the budget cycle is the ‘public hearing.’ According to a public notice issued by LMC on April 26, 2024, a public hearing is organized to collect queries, grievances, complaints, feedback, and suggestions on various affairs such as development and construction, heritage conservation, social development, and public service delivery. The objective of these hearings is to ensure good governance by making planning, development, and service delivery more effective, transparent, and accountable. Participation in these hearings is open to all citizens. A public notice is issued beforehand, and key figures such as the Mayor, Deputy Mayor, Chief Administrative Officer, and other relevant officials are present at the event. Questions and comments from citizens are immediately addressed during the hearing. A report is prepared after the event, which is reviewed and considered during the preparation of the annual development plan. As such, the public hearing is an essential part of the review phase of the local government planning cycle.

In summary, the preliminary data and information in LMC revealed three key participatory governance mechanisms in practice:

- *Citizen involvement in the planning phase* – through public meetings and/or application submission
- *Participatory implementation* – through UCs formed by project beneficiaries
- *Participatory review* – through public hearings, where citizens can provide feedback and suggestions

These mechanisms, while varied in structure and effectiveness, collectively represent the participatory intent embedded in local governance frameworks.

4.3 Data collection methods

4.3.1 Key informant interviews

“The term key informant is generally associated, though not exclusively, with qualitative research in which a researcher employs interviewing of knowledgeable participants as an important part of the method of investigation (Rieger, 2007, p. 2457).” KII, which carries a specific value in policy-related research, has been considered an important part of qualitative research for a long time. According to Lokot (2021), “KIIs enable insider insights into complex issues, facilitate access into communities, and also represent a research method that is relatively easy to implement (P.6)”.

During the fieldwork, the female ward members and female ward secretaries were identified as the most appropriate key informants for three reasons. First, as key officials in the ward office, the ward members and ward secretaries were recognized to possess significant knowledge of their community, developed through high-level interaction with citizens. The ward members are also responsible for engaging citizens in participatory governance mechanisms (National Planning Commission, 2022). The ward secretaries are not primarily responsible for such citizen engagement, but have observed the processes for a long time. Second, when the research objectives were shared, the local resident women identified these officials as the appropriate respondents. Finally, they were women. This does not imply that all ward members and ward secretaries are women; rather, it indicates that only a select few female ward members and ward secretaries were interviewed as key informants.

These key informants were interviewed in their offices. The interviews lasted for 25 minutes to an hour. One ward member (female) and three female ward secretaries were interviewed. The interview revolved around topics such as *the status of women in public domains, the opportunity for participation for women in participatory mechanisms, the participation level of women in participatory mechanisms, the supportive factors and discouraging factors influencing women’s participation, and the LGs’ efforts to promote women’s participation.*

However, the KII was not the principal method of data collection. It was used as a supplementary method to in-depth interviews and focused groups because over-reliance on KII may only give a voice to the powerful (the keys). It is important to quote Lokot (2021), who says:

While interviewing key informants also reveals power hierarchies from the perspective of power holders, understanding power from the perspective of the 'ordinary' is particularly important. The benefits of KII are best realized when this is used in combination with other research methods, which enable 'ordinary' perspectives to emerge. (p.6)

4.3.2 In-depth semi-structured interviews

May (2011) states, "Interviews yield rich insights into people's biographies, experiences, opinions, values, aspirations, attitudes, and feelings." Similarly, an interview is "a good way of accessing people's perceptions, meanings, definition of situations, and constructions of reality (Punch, 2014)." Interviews were deployed as the primary data collection method to collect rich data on women's experiences, opinions, values, aspirations, attitudes, and feelings about the participatory processes (May, 2011).

The in-depth semi-structured interviews were conducted because they combine unstructured and structured interview techniques. While the questions are typically predetermined, the interviewer can explore responses more deeply, which might seem contrary to the goals of standardization and comparability. However, this approach allows participants to respond in their own words more freely than in a standardized interview yet offers more structure for comparability than an unstructured interview (May, 2011).

The interview guide was prepared in the five stages prescribed by Kallio et al. (2016). After identifying the prerequisites for semi-structured interviews in the first stage, an extensive literature review and consultation with experts helped to retrieve and use previous knowledge in the second stage. A preliminary semi-structured interview guide ([Appendix III](#)) was prepared in the third stage, which was pilot-tested in the fourth stage to confirm the coverage and relevance of the guide. Then, the interview guide was finalized by incorporating the outcomes of pilot testing. However, the guide was tested with the first few participants and continuously improved after every interview.

The interviews were carried out in a systematically planned and prepared manner, as suggested by McGrath et al. (2019) in their famous article "Twelve Tips for conducting qualitative research interviews." The interviews followed research ethics such as privacy and confidentiality, informed consent, no harm, avoidance of dual roles and over-involvement, and reducing potential power imbalance, as Allmark et al. (2009) suggested. The length of an interview was supposed to be around an hour to reduce the exhaustion of the interviewer and the interviewee (Adams, 2015). However, the duration of the interviews

varied between 30 minutes and 1.5 hours, with an average length of 45 minutes, depending on the availability and comfort of the interviewees.

The in-depth semi-structured interviews were conducted with 12 women (Table 1 and Appendix II) who have some experience with participatory mechanisms available in LG, viz., public meetings, *Tole Sudhar Samiti* (Neighborhood Development Association), *Upabhokta Samiti* (User Committee), and public hearings. The women were approached through the officials of the WCs. First, the researcher had meetings with these ward officials in seven wards, purposively selected by the researcher after discussing with some officials working in the LMC. The wards were selected to cover the Newar⁴ and non-Newar communities: core, central, densely populated, residential, and commercial parts of the city, and peripheral, suburban-like, comparatively less densely populated, and residential parts of the metropolitan city. The specific wards are not explicitly mentioned to maintain the anonymity of the key informants.

Table 1 Brief information about the participants of in-depth semi-structured interviews

Respondent code	Estimated age	Education level or (estimated stated)	Identity⁵	Duration of interview	Marital status
I.1	35-40	University	Social worker	40 mins	Married
I.2	Around 40	Master degree	Homemaker	30 mins	Married
I.3	35-40	Bachelor's degree (incomplete)	FCHV	25 mins	Married
I.4	Around 40	Basic	Political party member	45 mins	Married
I.5	Around 40	University degree	Social worker	16 mins	Married
I.6	Around 40	School level	FCHV	34 mins	Married
I.7	Around 40	University degree	Political party member	41 mins	Married
I.9	Around 40	School level	Social worker	42 mins	Married
I.12	35-40	Bachelors degree	Homemaker	85 mins	Married
I.13	35-40	University degree	FCHV	40 mins	Married
I.14	Above 60	Bachelors degree	Social worker	70 mins	Married
I.15	45-50	School level	Social worker	60 mins	Divorced

The ward officials—initially met by the researchers—differed from ward to ward. In most wards, they were the ward secretaries; because the researcher was a civil servant, it was easier to approach a secretary who was also a civil servant. However, in some wards, the

⁴ Newar are the indigenous ethnic communities, who have been residents of the study area for ages.

⁵ How respondents defined themselves or wanted to be recognized—some respondents explicitly stated their identities, whereas some didn't. In the latter case, the researcher derived identity based on the conversations.

ward chairpersons, ward members, or both were the officials initially met. The short conversations with these officials, chats with the people randomly encountered, and the observation in the ward offices helped the researcher to develop a field diary to give additional insight into the context of the research question. Further, these officials contacted women with experience in PGMs and shared with them the purpose. Sometimes, the officials called or texted the participants and provided the researcher with their contact numbers. Then, the researcher called these women, shared the objectives of the interviews, gained consent for the interview, and fixed the interview date, time, and venue.

In most cases, the venue was the WC's office; in some cases, it was the respondent's house or office. First, the researcher's introduction was given, and the purposes were shared. The ethics followed in this research—such as anonymity, confidentiality, and the right to withdraw—were also briefed. An audio recording of the conversation was requested, and it was done only with the informed consent of the participants. The participants were also informed beforehand of their right to reject the use of whole or part/s of the recorded data in the thesis or to delete audio records at any time. However, such situations did not arise in any interview except for a respondent trying to recover from a recent divorce. This respondent refused to let the researcher record the conversation. Therefore, the key ideas from her responses were noted and transformed into a complete transcript immediately after the researcher returned home.

In some cases, the respondent also referred to other women who could be suitable, from their perspective, for this study. While selecting the interviewee among ordinary women, careful consideration was given to the representation of different incomes, castes, ethnicities, ages, and education levels to sufficiently grasp the heterogeneity within the population and compare settings and individuals (Maxwell, 2013). Respondents were selected carefully and deliberately. According to Maxwell (2013), such purposeful selection of research participants in qualitative research helps to get information relevant to the research question that cannot be obtained equally from other sampling choices. Choosing typical or representative units of study or population deliberately, knowing these units are typical, they represent the whole population better than random sampling.

An interview guide was utilized to facilitate the conversation, but it was not strictly adhered to. Instead, several follow-up questions were asked to better understand the phenomenon being shared by the respondents. They were asked about their experience of participating in participatory mechanisms. Several follow-up questions were asked to explore the factors

that influence their participation and the meaning and value they attribute to the participation. Additionally, questions were asked about the respondents' personal, family, and social lives to gain deeper insight. However, the matters were not probed deeply, given the gender differences between the researcher and the respondents.

4.3.3 Focus group

According to Khan & Abedin (2022):

A focus group is a form of qualitative research in which a group of (usually homogenous) people are asked about their perceptions, opinions, beliefs, and attitudes towards a product, service, concept, advertisement, idea, or packaging. The sessions are conducted in an interactive and engaging setting where participants can talk with other group members. (p.377)

In this study, three FGs were conducted with women who do not have significant experience in PGMs available in the LG's jurisdiction, which this research is concerned with. However, most participants had some idea about the participatory mechanisms, and they knew the people who participated in these mechanisms. Moreover, most women were engaged in community activities, indicating their presence in the public domain. These characteristics made them the appropriate candidates for FGs. FGs were conducted where the women were comfortable, as suggested by Khan and Abedin (2022), in their offices or localities, where the women could find a relaxed and free atmosphere to discuss.

The number of participants ranged from three to six. Two focus group discussions were carried out in the women's group.⁶ There were three participants in each FG conducted in the women's groups. They were the president, vice-president or secretary, and treasurer of their groups, the vital positions. One FG was managed with the support of a female ward member, while another was aided by a female relative of the researcher, who was also a member of the women's group. Another FG was carried out among five staff members and a board member of an NGO. The staff were the director and teachers for the children with disabilities and, most importantly, the residents of LMC. The director of the NGO, who was the wife of a friend of the researcher, facilitated the arrangement of this FG with her staff members at the organization's office (Appendix II).

The FG participants were jobholders, women with some business, homemakers, married and unmarried, native and immigrant people, age groups ranging from 25 to 60 plus, highly

⁶ Women's groups are formed in neighborhood level organizing the women living in that neighborhood. The women's groups conduct various activities to empower the women. The women's group are registered in the local government and promoted by the local government.

educated and uneducated (Table 2). So, the focus group discussions covered broad categories of women. The FGs were carried out for 30 minutes to one hour. The FG participants had little experience with PGMs but were active in the public domain through women's groups and NGOs.

Table 2 Brief profile of focus group participants

Focus Group	Occupation	Marital status	Education (Estimated)	Age (Estimated)
FG 1	Director of the NPO	Married	Masters degree	35
	Teacher/ Employee of NPO	Married	Higher education	30-35
	Teacher/ Employee of NPO	Married	Higher education	30-35
	Teacher/ Employee of NPO	Married	Higher education	30-35
	Teacher/ Employee of NPO	Unmarried	Higher education	25-30
	Board member of NPO	Married	Illiterate	60 plus
FG 2	A teacher in a local school	Married	Bachelors degree	40
	Small family business	Unmarried	Higher studies	40
	Own tailor shop	Married	School level	35-40
FG 3	Small shop of kitchenware (Own)	Married	Basic	50
	Family business (restaurant)	Married	Basic	50
	Own tailor shop	Married	School level	30-35
	Family business	Married	Higher studies	40
	A teacher or an employee in a local school	Married	Higher studies	40-45
	Homemaker supported by kids	Married	Very basic	57

The researcher—as a facilitator—asked several questions to the group, such as, ‘*What do you know about participatory mechanisms?*’, ‘*Do you participate?*’, ‘*Why do you participate or not participate?*’, ‘*At what conditions would you like to participate?*’, ‘*What do you think about the people who participate?*’. The facilitator asked questions on the floor and let the participants discuss them. In the cases they did not discuss, they were individually asked the same questions to investigate.

A brief profile of interview and FG participants is presented in Appendix II. For the anonymity of the participants, they are referred to using specific codes throughout this thesis. For example, I.1 means the respondent number one, who was interviewed. Similarly, G.1 means the group discussion number one, G.1 P.1 means the participant number one of group discussion number one.

4.4 Data analysis

4.4.1 Transcription

The audio records of the interviews and FGs were transcribed manually by the researcher alone, as Gibbs (2007) and Boyatzis (1998) suggested. The audio records were played in an MP3 player and transcribed by the researcher in MS Word in the language of conversation—Nepali, the researcher's first language. After transcribing each conversation, the researcher played the audio and checked the transcript simultaneously for any errors that could occur in such a time-consuming manual transcribing process, as suggested by Gibbs (2007). Any identified errors were corrected immediately. All transcriptions were recorded verbatim, except for one group discussion in which, sometimes, participants engaged in unrelated conversations. These portions were removed; however, the transcript included a note indicating the general topic of their discussion. Then, the researcher read and re-read the transcripts thoroughly to immerse himself in the data.

4.4.2 Coding

A codebook was prepared before coding, using the codes developed from the research literature and previous studies. The codebook was subsequently revised following the completion of the fieldwork to incorporate the themes outlined in the interview schedule and the researcher's emergent insights and preliminary interpretations formed during the data collection process (Gibbs, 2007, p.42). The codebook was continuously improvised during coding, too, to incorporate the current and complete list of codes that are arranged hierarchically. The codebook also has “definitions, memos, and analytic notes about the coding scheme (Gibbs, 2007, p. 40).

However, Gibbs (2007) suggests, “one should try to pull out from the data what is happening and not impose on interpretation based on pre-existing theory (p.46).” So, the coding scheme was inspired by both so-called ‘concept-driven or deductive’ and ‘data-driven or inductive’ coding schemes “not to become too tied to the initial codes (Gibbs, 2007, p.46).” After reading the transcripts several times, the researcher labeled several sections with the deductive codes. However, careful consideration was given to any themes emerging from the data. As such, emergent themes are discovered and updated in the codebook with definitions, memos, and analytical notes. Following Gibbs' (2007) idea, the codebook was updated and improvised throughout the coding process to make it a live document.

Following the suggestions of Gibbs (2007), after the coding was completed, the codes were checked against the transcription to identify any deviational drift that would bring inconsistency and guard against such inconsistencies. Every time, the codebook was updated with code changes, its definition, memos, and analytical notes to ensure reliability.

4.4.3 Analysis

Simultaneously with the coding, the respondents' codes and respective quotations were entered into a code matrix in MS Excel—codes in the column title and related quotes in the cells below. The code matrix incorporates the anonymized identity of each respondent, as well as age, education, profession, and other relevant biographical information. The quotation included, at the end, the page number of the transcript for cross-referencing, following Gibbs' (2007) suggestion:

With cross reference in transcript, comparison helps to understand the relationship between factor, phenomenon, settings, cases, etc. With this information, you may be able to build a model of the situation that identifies causes, strategies, intervening conditions and consequences. (p.89)

Then, the code matrix was checked against the transcript, and any inconsistencies or errors were identified and corrected. Similar codes were grouped and organized into hierarchy and sub-hierarchy in the next stage. The code matrix was reviewed to find “patterns, making comparisons, producing explanations and building models,” as suggested by Gibbs (2007, p. 78). In addition to the code matrix, a qualitative table was prepared to make systematic comparison easier, as suggested by Gibbs (2007, p.80).

Chapter V: Results

Open-ended semi-structured interviews and group discussions were conducted with women who had and had not participated in the participatory governance mechanisms of Lalitpur Metropolitan City. The aim was to explore the factors influencing women's level of participation. A mixed approach of inductive and deductive coding was used in qualitative thematic analysis. The identified factors were categorized into individual, external, and structural.

5.1 Individual factors

Individual factors are within a woman's control. They relate to her choices, decisions, capacity, and personal qualities. However, these factors are constantly shaped by external and structural variables.

5.1.1 Time

The respondents emphasized the 'availability of time' as a key factor influencing their participation in local participatory mechanisms. Women generally defined time for participation as the hours they could spare after fulfilling personal, family, and other essential responsibilities. For instance, women engaged in regular employment, referred to in their own words as "ten-to-five jobs," often found it challenging to participate. Similarly, when participatory programs were too lengthy, women reported being unable to commit fully. Participation was also hindered when the timing of events conflicted with household duties, childcare, or work-related responsibilities, which were often prioritized over community engagement. A woman, who is involved in several participatory mechanisms and multiple local institutions, said:

I don't come here [participatory forums] without giving time to my family. I give my family my first priority. Sometimes, there is a hamper [on family responsibilities]. Sometimes, when my sons return from school and I am not there, I have to say, 'Son, I am on a program. Why don't you eat?' And most of the time, I give my family my first priority, I do it. Sometimes, such a problem [of time management] comes. [Because of numerous involvements], I have to give [time], I am busy, here and there, I have to give [time] at home, too. (I.5)

Many women mentioned that they could not attend events scheduled in the mornings (before 11 AM) or evenings (after 3 PM) due to their responsibilities. In the mornings, they were occupied with cooking, feeding their children, and preparing them for school. Afterward, they completed household chores, and only then could they consider community

involvement. By 3 PM, their children returned from school and husbands from work, requiring their attention again. This was especially true for homemakers.

Women involved in businesses or wage labor also faced challenges allocating time for such activities. LGs and other institutions organizing participatory activities appeared aware of these constraints. As a result, events were often scheduled during the daytime or on weekends and holidays to maximize women's participation. A woman taking a leadership role in participatory activities said:

When we schedule our programs, we focus more on that time, as housewives are usually free from 11 am to 3 pm. ... We schedule them so that we can go home and cook lunch after the children return from school. (I.7)

However, even when such accommodations were made, participation often increased the overall workload for women. Most women had to wake up earlier, complete their chores more quickly, rush to attend the events, and hurry back to resume their duties, creating considerable time pressure.

This issue of time was also interlinked with other factors. For example, mothers of young children found it particularly difficult to manage their schedules. The pressure to juggle multiple roles led many women to prioritize their commitments based on perceived importance, with family, especially children, typically taking precedence. Age and marital status were also influential. Older women, particularly senior citizens, were generally more likely to participate. Married women, on the other hand, were often busier due to household responsibilities and caregiving for children or the elderly. Unmarried women had fewer such obligations, although only a few women of age are unmarried or single.

Some women believed they "cannot have sweets in both hands," implying that being active in public life required compromising personal time. Non-participating women consistently cited the lack of time as the primary reason for their non-involvement. However, participating women did not claim they "had time." Instead, they emphasized the importance of 'time management', stating that one can participate if genuinely interested.

A FCHV with experience of significant involvement in participatory mechanisms stated:

If you really want to do something, nothing can stop you. ... Now, it's up to you to manage the time. I think you can manage the time when you are interested in doing it. ... As for social work, you should do it as much as possible without affecting anyone [family and social responsibility]. If that's not possible, even if you had to give up one side, you should still take care of the other side; then, where you are important, that's where you have to be. (I.13)

The main factor that influence time is workload, which stems from various sources: household chores, employment, personal or family businesses, caregiving for children, elderly family members, or those with disabilities, and other public or community responsibilities. This heavy workload often results in time constraints and stress.

Most women admitted that they are frequently occupied with household tasks. They must wake up early and complete their chores before leaving the house to participate in public activities. Since participatory activities rarely provide direct economic benefits, family members often question the value of participation, asking, “Why go for free (I.3)?” In addition to their domestic duties—cooking, cleaning, and caregiving—women also contribute to family businesses such as farming. During farming seasons, managing time becomes even more difficult.

Family support does not necessarily mean women are relieved of household responsibilities. Kitchen duties, in particular, remain their primary responsibility regardless of how busy they are. If there are other women in the household, these responsibilities can sometimes be shared, but managing everything becomes a challenge when there aren't. Most women hoped that other family members would share responsibilities, yet many still view household work as primarily their own duty, not men's. Men are generally seen as providing additional rather than shared support. “No matter how much a man helps a woman, it is never a genuine support (I.1).”

Notably, the definition of “family support” varies among women. For a women's group chairperson, support meant not being verbally abused by her husband, rather than sharing household responsibilities (G.3 P.2). For many women, support is expressed through words like “Go, participate,” but often this implies, “Go, but finish your household tasks first.”

Women are typically busiest during mornings and evenings. While they may be free during the daytime, organizers often target this window for participatory events. However, attending such events adds to their workload. Participation does not reduce their domestic duties—instead, it forces them to sacrifice personal time, such as sleep. Their day often begins early: completing chores, attending meetings, returning home, resuming household work, and going to bed later than usual. This routine can negatively impact their health. Still, many women believe that they are more responsible than men and strive to fulfill both domestic and public duties, even at the expense of their well-being. A ward member (female) observed this nature of women as,

How are women, they are not as careless as men. If there is a program, it is like this, participation in it is mandatory, then women, who wake up at 6 am, wake up at 4 am that day, they finish all the housework, right? Even they cook meals and all, even if they have to reach somewhere at 7 pm, they manage it that way. It is very difficult for women to manage these things, but they try to manage it even by cutting down their time without taking care of their health. (I.8).

Sometimes, participatory processes themselves increase the workload. In case of planning meetings or public hearings, women may simply attend, discuss, and leave— not a big deal. But when involved in implementing budgets through UCs, they must engage in lengthy procedures and extensive paperwork, which significantly adds to their workload. This can create hesitation or fear. A ward member (female) shared how her fellow members of a women's group avoided when they were requested to form a UC to construct a local road:

In this work, when they [women] were told that it should be done this way and that way, they got scared. "Oh, that's how it is. Oh, we won't do it, we won't do it. We won't touch it, we won't touch it. Okay, okay, give it to them [men]." I said, "Okay, we [women's group] will build this road. Let's do it". Then, they [women], after hearing to other people said, "If the work goes wrong, we'll have to do it again, we'll have to invest this much money" [the initial investment required as public participation]. And they never agreed to take charge. (I.9)

Furthermore, leadership roles in these committees usually come with disproportionate responsibilities, as other members often do not contribute equally—placing even more burden on the woman leader:

And in this, everywhere, I had to go, from opening a bank account to registering a PAN, the chairman himself went for PAN, otherwise, looking after everything, settling everything, from water's issues, to facilitating them [contractors] in every affairs, all the work fell on my shoulders. The secretary's work was the busy thing, I got to know. I have done all those works A to Z from my side, in time. ... many people don't come, many people say they come in the evening, many don't sign, many people say, "it's okay even if you give our fake sign", but I categorically said, "no."... [At the time of settlement], I couldn't find two or three people [members, whose signature was required], I made them do it by visiting night and day, I did the whole work. I had to go up and down, I saw some on the way, I stopped them on the way, stopped their scooters and bikes. (I.12)

5.1.2 Confidence

Confidence is necessary for participation in public participatory meetings. Overall, the confidence level among women is lower compared to men. Women often hesitate to attend public meetings, even when they are open to all citizens. Even if they attend, they hesitate to speak; even if they talk, they hesitate to assert their opinions. A female official (elected for the WC under the seats reserved for women) said that, on average, women have low confidence.

... a little bit of a tendency to not come forward, a little bit of a tendency to be afraid, a little bit of a tendency to be afraid of what someone might say, what society might say, what family might say, that's what it is.

There are several instances where LG officials offered women responsibilities, such as overseeing small-scale local infrastructure construction and maintenance work, which were considered important participatory development activities. Still, women either refused or hesitated to accept. They hesitate to take on responsibilities due to “uncertainty about the outcomes and their lack of knowledge on handling tasks and unforeseen circumstances (I.9, G.3 P.2).” It is expected that someone boosts their confidence initially. A woman with significant experience in public participation explained the fear women have of taking public responsibilities:

As a users' committee, we are afraid of [consequences] such as, our expenses can go unaudited, some obstacles may appear while working. And in these issues, [someone] should encourage and guide us saying that this issue is this, we are with you if something happens tomorrow, we will also work as far as possible, now do in this manner. (I.13)

To address this, LGs and women's groups are working to develop women's confidence through training sessions and exposure opportunities (I.11, I.14). Respondent women acknowledged and appreciated the role of women's groups, NPOs, LGs, and facilitator women in building their confidence and supporting them at the beginning stages (G.2 P.1, I.15). A senior citizen woman leading a women's group appreciated the roles of the women's group and the LG in developing the confidence of women:

... we know that the sisters in our group were not very literate, even though they were literate, they could not speak straight. And, as we have done this accounting training, speaking training, people need speaking skills like an announcer, they also have to be able to stand up and speak. If you ask me to stand up and speak, I may not be able to speak now. I have spoken sitting down. That's it. Regarding these and other things, we have done a lot of inspiring work as a group, besides the skill development trainings. (I.14)

Confidence depends on several factors, including education and, interestingly, ethnicity. Since the study area has a significant population of the Newar community—an indigenous group inhabiting both the core city and peripheral suburban areas—ethnicity plays an important role. The influence of ethnicity on confidence and participation level is presented in a separate section, ‘culture.’ Non-participant women mentioned that they feel shy about participating. Some respondents shared personal stories of how extremely shy they were when they first encountered such public situations (G.1 P.2, I.2). Some women said that even when they knew what was right and wrong, they still dared not speak (G.1 P.1).

Income also contributes to confidence (G.1 P.1). However, some non-participant women said they would tremble when speaking to many people, despite having fair income levels, good education, employment, and supportive families (G.1). According to some women, family background and a woman's life history also determine confidence. How a woman is groomed during childhood plays a significant role.

... it's family background, isn't it? How much exposure you have had since childhood, that makes a difference. One thing is education, how much knowledge do you have on that subject? [But] some people are the ones who can speak, even without knowledge Just confidence is enough to speak. environment. That confidence, speak even without knowledge, regardless of time, right? Main thing is I don't know, where that confidence comes from [everyone in the group laugh]. (G.1 P.1)

According to non-participant women, actively participating women seem confident to speak publicly, even if they lack complete knowledge of the issues. Some women believe they can manage other challenges, such as time constraints, if they have the confidence to participate and a stable income (G.1).

5.1.3 Capacity

The capacity to participate is an essential individual factor. Still, it depends on several other elements such as education, knowledge, skills, experience, income, and access to information.

Education

“Empowerment comes along with education (I.16).” When comparing groups, educated women are more active. Educated women tend to move forward, while uneducated women are often more hesitant and less confident (I.7). Uneducated women are usually underestimated in public discussions and other participatory mechanisms (G.1 P.6). Women believe that education provides knowledge, the ability to understand issues, and broadens one’s mindset. An educated woman working as a director in an NPO said:

... regarding the plans, too, [education] makes you know what policies are there, what programs I shall do, what to be done for whom, you will know all that. If you aren’t educated, I think your mind will be a little narrow. If you are educated, maybe it's a little broad. (G.1 P.1)

According to some elected officials, female Dalit ward members are less active compared to other women members because of their comparatively lower education levels (*field diary*). Since the study area lies within the capital city and is considered a prime urban area, the women's literacy rate is higher than the national average (I.16), but gaps still exist. Although the study area was declared completely literate some years ago, according to a

female ward member, many people, especially women in the older age group, are still largely uneducated (I.4). A woman, who served as a ward member and was now appointed to a formal position by the LG, stressed the importance of the education level of family members, too:

It [education] is very important. All this ignorance is due to illiteracy. ... For example, let me give you my own example. For example, if my mother-in-law was not educated, I would not have been able to go out. She was educated, she had a job [when she was young] ... Education is the greatest of all. Education is important, very important. (I.1)

Families with higher education levels are believed to have a greater understanding of public affairs and are more supportive of women's participation. The education level of husbands and children is essential in supporting and encouraging women's participation (I.16).

On the other hand, Education has an ironic relationship with participation levels due to time issues. Educated individuals are often busy with their jobs or businesses and lack the time to participate (I.4). Similarly, many educated young people have emigrated overseas for further studies or employment (G.2). As a result, those available for participation are mostly homemakers (I.16) and senior citizen women (I.7), who are often illiterate or only semi-educated.

Furthermore, most senior citizen women are uneducated or illiterate. They expressed that they wished they had received an education during childhood; however, girls' education was uncommon then (G.1 P.6). Later, government and NGOs initiated adult education campaigns (I.2, I.4), which are still ongoing in the study area under the banner of "continuous education." Through these programs, adult women receive basic education, enabling them to sign their names and read and write basic information. This has helped boost their confidence in public spaces (I.4).

However, they acknowledged that working with them would be more comfortable and efficient if their fellow women group members were more educated (I.12). Lower levels of education are associated with lower levels of awareness (I.6, I.12). A limited level of education also restricts the ability to exploit the potential of social media and internet-based participation opportunities (I.12), which are increasingly important media of communication (G.2). That is why some active women pointed out the challenges of working with illiterate community members (I.12).

This is apparent as women's groups often struggle to find women who can handle the documentation and accounting tasks required for the operation of their groups (I.8, G.2 P.1, G.3 P.2, I.12). The few women who are educated and available are in high demand to represent women's voices in the public domain (I.5, I.12, I.15). In some cases, these women experience a heavy workload, which leads to stress (I.1, I.5, I.12).

Knowledge and skills

Women need various knowledge and skills to build their capacity for effective participation. These include understanding local government processes and procedures (I.2), awareness of current events and social issues (I.6), and practical skills such as leadership, management (I.16), public speaking, advocacy, lobbying, and teamwork (I.14).

Such knowledge comes from various sources. According to an FCHV with several years of public participation experience, formal education provides a foundation. Still, it is not the only, nor always sufficient, source (I.6). Some women expressed the need for specific training, such as public speaking, management, accounting, and formal writing, to support their participation. A woman leading a women's group asserted the need for knowledge beyond the things studied in formal schooling:

What is formal writing? Where should we say "sir"? We don't know which word to put where, at first. Yes, we have been pleading with the ward to learn those things. The ward provided some budget and we conducted public speaking training, and the advanced public speaking training was also carried by our own [women's group] group. In fact, both public speaking trainings were carried out by our group. And then, after that, we had accounting training. (I.14)

In interviews and group discussions, respondents strongly emphasized the importance of knowledge in public participation because it also builds confidence. A lack of knowledge creates hesitation, sometimes compelling women to seek male involvement instead. The women without substantial public participation experience often described themselves as having low expertise. From their perspective, regular participants and experts dominate public meetings because of their higher level of knowledge. A young woman working as a teacher of children with disabilities said, "What to speak there, men know more than us, we don't know much. The only thing we know about a little is that women's groups (exist). We don't know much about other things (G.1 P.1)."

Women who actively participated generally recognized that they possess greater knowledge than others (I.7, I.16). Other women often consult with them and entrust them with their issues to be raised in public discussions. The women who are active in political parties,

leaders of women's groups, and those working in the local community, such as female community health volunteers (FCHVs), teachers, NGO/NPO workers, and local government staff, are perceived as having higher levels of knowledge regarding participatory mechanisms. During discussions with two women's groups, it became evident that these knowledgeable leaders were widely regarded as the eligible representatives for public talks. As one member said, "They know the things. We don't know what to say (G.3 P.1)."

Women with higher knowledge levels are in high demand. They reported that they are frequently sought out for assistance in forming and operating UCs (I.7), establishing and managing women's groups (I.5, I.15), and addressing other social issues (I.13, I.14). On the other hand, women with limited knowledge are often underestimated in public forums, even if they do participate (G.1 P.6, I.2). A woman, who recently gained experience of UCs, pointed to a lack of knowledge among women, which is causing problems.

Hmm.... Let's just say, when you try to convince girls about something, the first thing is that they don't have any knowledge, greater of all reasons, right? I see a lack of knowledge, they don't have any knowledge. What is an users' committee, what is a neighborhood improvement association, how many years does it last, and so on. (I.12)

Many women shared the difficulties they faced during the early stages of their participation, but their experiences helped them learn and gain recognition in public life over time (I.15, I.12). An educated woman, who has experience in a very few participatory events, said,

Without doing it first, without getting involved in a task, when I don't know anything about that task, I cannot even ask questions about it. For that, I first had to know about the task. Without knowing in detail how this task comes about, how it is done, how committees are formed, how the budget comes, how the budget is passed, I cannot even ask questions about it without knowing in detail. But if I can gradually participate in all the programs in this way, my field, the field I involve in, If I participate deeply in a program till the end, I will be able to talk about the shortcomings, weaknesses and benefits [of the issue] and ask about it. (I.2)

Actively participating women acknowledged the critical role of supportive individuals and institutions in helping them build their knowledge and skills, which will be presented in another section, 'support.' Once they reached a certain level of competence, their growing confidence enabled them to seize further opportunities, reinforcing their knowledge and abilities (I.1, I.15). In women's groups, vital leadership positions—such as president, secretary, treasurer, and vice-president—are typically held by women with greater knowledge, skills, and, importantly, confidence (I.4).

Despite these dynamics, LGs often address women as a single, homogenous group. In reality, there is a wide variation in knowledge level among women (I.16).

Income

Income is essential in building women's capacity for participation (I.7). According to many women, having their *own* income holds distinct meaning and value. Even when they have access to family assets or receive financial support from their husbands or other family members, they feel more capable and confident when they earn independently (I.1). They believe that own income fosters a sense of self-reliance, enables them to address domestic issues, and empowers them to be active in public life. Whether or not a woman needs to ask her husband or parents for money significantly influences her confidence. A ward member (female) said:

The first thing is, when we talk about women's empowerment, shouldn't women's income be the main agenda? If she no longer has her own income, nothing will happen by saying big things. Right? She can neither fight with her family nor with society. When she becomes self-reliant, she will find her own way. She will have the ability to raise her voice saying that this is her right. That is why my main objective is that women must be a little more capable. They must be self-reliant. (I.8)

As the study area is urban, most of the respondent women were financially capable, whether or not they had personal income. Those without formal employment often contributed to family businesses, such as grocery shops, seasonal farming, or stock market trading, with support from husbands or children. Therefore, most women did not report facing severe financial constraints. However, when asked directly, they stressed the importance of having their own income rather than depending on others (I.1, I.8, G.1, G.3 P. 6).

Interestingly, women with regular jobs or businesses often struggled to find time for participation due to their work commitments (G.1). It was mainly homemakers, women engaged in family businesses, and senior citizen women (I.14) who had more flexibility to participate. Participation in public life carries a high opportunity cost for women who must work daily to cover basic needs, such as food, children's education, clothing, and medicine. In such cases, they are less likely to participate. Thus, the overall financial status of the family plays a significant role in determining a woman's ability to engage.

Even homemakers were sometimes criticized by family members for spending time on community work instead of focusing on household chores or family-run businesses like farming. Some women noted that the cost of hiring someone to do their work at home was higher than the earnings they could make from community participation. A woman working

as an FCHV and National Health Insurance Facilitator in the community, who also had some experience of participating in public meetings mainly because of her profession and close relation with LG, said,

... and family is like, If I go out [for participation or other community responsibilities], especially during monsoon, during the rice planting season, my family is like, we are hiring a worker for 800-1,000 rupees per person, and you are going to work for just 400 rupees. Family asks like, why you will go and work like that 'quitting the housework' .
(I.3)

In planning meetings and other participatory forums, women often express the need for income-generating skill development training (I.7). Popular demands include training in sewing, knitting, beauty services, soap and bag making, sanitary pad production, and similar activities. Even homemakers use these skills during their free time, producing goods for their family's use or to make money by selling (I.4).

Providing monetary incentives to encourage women's participation in public activities is contentious. Some women emphasized the importance of allowances that can help cover daily wages or transportation costs (I.2) or serve as a way to justify their participation to family members (G.1 P.6). Others, however, expressed concern that such payments could lead to a moral decline—where people participate only for financial gain rather than a genuine intention to contribute to society (I.1). These perspectives varied based on income levels and financial security. In one group discussion, only a single woman—who had no personal income or access to her family's financial resources—strongly advocated for allowances. She repeatedly said she would like to show the money to her husband as proof of her earnings for the day, helping her justify her absence from household duties (G.1 P.6). However, other respondents of interviews and group discussions didn't emphasize the need for such monetary benefits of participation.

5.1.4 Motivation

Self-motivation is crucial in determining women's participation in local participatory mechanisms. Many women develop a sense of self-motivation and social responsibility, which drives them to engage in public affairs. However, motivation is profoundly personal and shaped by various external, individual, and structural factors.

While some women express strong interest in participation due to a sense of responsibility, awareness, or a desire for recognition, others prioritize family obligations—often internalized through gender roles taught from early childhood. A female officer said,

The family says, “You should do this, cook and feed, take care of the family, take care of the child.” And another thing, what happens internally to them is that my belonging is more to the family than to society. That is what I have been learning as a culture. Or did it happen naturally, no, what is that? But first to me is my home, only then, it is society. (I.10)

These beliefs frequently lead women to sacrifice their education or careers for family responsibilities, especially after marriage. She further elaborated on how the interests and concerns vary across genders. She added,

Now, when friends are sitting and chatting, if there is a male character, the way we chat is different - maybe we think a little more broadly, talk more broadly, talk about public domains. If it's women only, we tend to discuss about “Hey, this happened at my house today, my son ate this, did this, refused to do his homework?” That comes from inside, otherwise we wouldn't have talked like that. I don't have to come to the office and tell others that my son did this and that. But that comes naturally. That happens automatically. Our attention is more on the family than on the outside. (I.10)

Many interviewees shared stories of these sacrifices, explaining that they cannot compromise their family duties, having already given up much for their households (I.12). On the other hand, active women present a contrasting narrative. Their high interest and motivation help them manage both public and private responsibilities efficiently (I.13).

Women who participate actively often exhibit strong willpower. They feel a sense of duty to prove that they can perform public responsibilities as well as men. When opportunities arise, their motivation pushes them to act. A woman working as an FCHV, who has noteworthy experience of participation in planning process, said:

What should I say now? [Thinking a little] I have this feeling in my heart that I am behind as a woman, that I am not able to do what I want as a woman. If I had the opportunity, I would have been able to do it as well as the men, just like the men. After entering this field. Now I entered this field. I think why not use the opportunity that came my way. We can't do anything higher than this anymore. Not even with a desire. Where am I? What can I do? Only desire is not enough. Suppose, I have a desire of going to the sky. That's not possible, is it? That's why I say, “Now I have to do it, if we don't do it, who will?” Now, now, I have the desire of continuing it, that's what's in my mind. (I.6)

Many are driven by the belief that social work carries great value despite lacking financial reward. They are willing to sacrifice time, effort, and small personal interests for the greater social good. A woman with so many years of experience in women's groups and participatory activities shared:

I have a small shop, and when I have to go somewhere, I close the shop. If I close the shop, there is no business and there is a loss. But I don't calculate that loss. I have given more priority to social work. There is no financial benefit from social

work. On the contrary, I spend money on myself. In some places, they say, "Let's sit down and discuss," and when it's time to have tea, they ask, "So ... do you have any money?" Even the men now make me pay instead of paying their own money. I feel very ashamed when others are sitting there without paying. That's why I pay. (I.15)

Community members often assume that those who participate actively must have received some benefits. "But in reality, there is never a benefit (I.12)." Participation often comes with opportunity costs. Yet, for highly active women, contributing to society outweighs these costs (I.13, I.14, I.15).

These highly motivated women, however, often express frustration over the lack of interest shown by others, even in an era of increased access to information through mass media and the internet. A ward member (female) pointed to the apathy of most fellow women towards involvement in governance and development:

The women are included only due to the mandatory requirement. I don't know them being active and say, 'let's do this, let's do that, we will also come, now where should we go, what should we do'. I don't know how this is in other places. I came to know things from my neighborhood. They are even hesitant to sign. Tell me. I told you what happened. [laughter] I didn't lie to you. ... Oh, let's try it ourselves, let's try this plan, no one is saying. (I.9)

They argue that, despite being informed, many women ignore or undervalue participatory opportunities (I.12). One active participant noted that most people—regardless of gender—are focused on personal or family matters and show little interest in participatory governance (I.6).

Non-active women view these processes as "government affairs" that do not concern them directly. While they acknowledge that participatory mechanisms are open to all, they often do not see them as personally relevant (G.1, G.3). Some are comfortable supporting active women but hesitant to take on leadership roles themselves (G.3 P.5). They openly admit that participation is interest-driven—and that they simply lack the interest (G.3 P.3).

The desire to learn is another motivating factor. Women who aspire to learn from experience often find inspiration in local female leaders who serve as role models. According to one local leader, constraints and lack of freedom, particularly for married women, inhibit interest in public life (*field diary*). However, exposure to participatory activities—mainly through socially engaging occupations—can foster interest over time (I.1, G.1 P.1). For some, public participation brings recognition, name, and fame, which also motivates them (I.1, I.15).

According to most respondents, women's interests often differ from men's. Women are generally more drawn to “software” activities such as skill development training (e.g., sewing, soap-making, beautician courses) that directly support income generation (I.7). In contrast, they show less interest in “hardware” activities like infrastructure construction or maintenance.

Women are particularly involved in community health-related infrastructure projects, such as constructing health posts. These projects are often carried out by user groups that are either women-only, women-dominated, or led by women. FCHVs frequently take leadership roles in such initiatives due to their longstanding involvement in community health awareness and their strong connection to health services.

Similar examples can be found where women have actively participated to address issues that directly affect them or relate to their gender roles. Another female officer shared an example of women actively participating in small-scale infrastructure construction at the local level.

But, last year, one women-only user committee had implemented a project, ... there is a problem of drinking water, when women go to collect water, the weak and temporary bridge made up of such bamboos support. ... was a need of a permanent and strong bridge. Women are those who involve more in household duties, so it is the woman who suffers. They came [to ward office] with the demand of a bridge. Then we allocated budget for that. Later, the user committee was also formed of the women only. Then the project got completed, too. (I.16)

Motivation is also shaped by individual traits such as personality, education, family background, and awareness. Another female officer suggested that, in some cases, a sense of existential crisis pushes women to prove themselves through public engagement. She further added:

Umm, ... Some participate to get something . Umm, [pause] Umm, [pause] The participants may have different perspectives, some may have strong motivation to learn and act, some may not have knowledge of why this program is being implemented, without such knowledge, some would participate, so there are different kinds of participants. (I.16)

LG's awareness-raising activities—such as training, exposure visits, and discussions—have helped inform women, increasing both awareness and interest. The same female officer said that the level of awareness influences the motivation level:

... first the most important thing is sensitization. We are also part of the state. Our role is also important to the state. This realization is the most important motivating factor, I would say. One word I am repeating so much- sensitization. I have seen a few women. When I try to know their background, many family members are

connected to government service. That makes a person much informed. Another issue is how much sharing of information exists between a husband and a wife. I found that much information is shared between them. So, first is the sensitization. (I.16)

However, information alone is not enough. Some women, though interested, lack confidence or do not see a clear opportunity to participate. These women need encouragement, support (I.13), and sometimes a gentle push to get involved (I.12, I.15). Pushed participation can be transformative. Some women are encouraged by community members or family to take on public responsibilities. These “promoted” women are often educated and capable. Once they are exposed to public participation, and if other conditions support their involvement, they are likely to remain active or even assume leadership roles. For example, I.12 is an educated young woman living with her husband and kids. Further, she is not engaged in any regular job. First, she was requested by the women of her neighborhood to lead a women’s group because she was educated and free (time). Then, despite her disapproval, she was pressured by her neighbors to take leadership in a UC:

One day, when my neighbours were talking about the road construction in our neighborhood, they told me, "You should take the role of chairperson." I said, "I don't want to. I'll support you and become a member, if other leads it." They almost forced me to be the treasurer right then and there. I didn't really want to. But I said okay, sometimes I have to do social work, too. After all, someone has to take responsibility. (I.12)

Nevertheless, according to a female officer, in her observation, self-motivated women are typically more effective in participatory governance than those pushed into it (I.10).

A key deterrent to participation is the *‘perception of meaninglessness’*. If women feel that their voices are ignored, that meetings are tokenistic, or that decisions are made in advance without their input, they lose interest. A woman mentioned her discontent with repetitive training sessions that fail to acknowledge women’s real concerns. She further added:

Those programs are called. In the programs, a limited number of people sit and discuss, make decisions, and invite us just to sign, that's why I don't even feel like going to some programs. [laughing] Okay, this is a program, I think it's best to get opinions and suggestions on what should be done in this program. Because when a decision has been made, just saying "We have made this decision, this is it, okay, sign it" is a bit of a stretch for me, that's why I haven't even gone to some programs. (I.2)

If participation is reduced to mere formality or ritual, aware women may disengage, feeling their involvement has no real value. A highly active and experienced woman said, “Whatever, their voices should be heard. And the programs they demand, which they want

for them, that ones related to financial. If such programs are held, women can be more involved (I.7).”

Women hold particular perceptions about PGMs and have ascribed meaning and value to them. Their likelihood of participating increases when they perceive these mechanisms as beneficial, necessary, or capable of delivering tangible outcomes. “It's like this, if it's something that I need urgently, I'll get some achievement from this training, if it's good for me, if it's beneficial for me, then I'll go (I.2).” As one female official asked, “People don't participate for nothing. What is the importance of participation for the women? Who will tell them (I.10)?”

Women assess the significance of each participatory event. They are less likely to participate if an event is deemed less necessary than their other priorities. When women perceive these events as a waste of time or unproductive, they tend to stay away. Some have expressed frustration, noting that participatory forums sometimes become meaningless discussions. One woman said, “We have allocated our valuable time for it, and if it's just nonsense chit-chat, why participate (I.12)?”

Stress from public criticisms and excessive workload also discourages participation. Some women question the value of ‘*taking on the headache*’ of public engagement, especially when it offers no personal gain. Again, the first female officer said:

And one thing is, even if women go and speak, who will listen? If their participation is meaningful, then they will go. If they are respected, then they will go. If they are not respected, then who will go? Another thing is, there are some external barriers, too. Like, how will the society..? I said it before - about meaningful participation. If what they say is implemented, then they will come. And they have been struggling at home too, they have been thinking in their minds, “Oh, did the son eat or not?” After all this, they come and speak there, if that doesn't get value, why do people come? That is also a matter. (I.10)

Cumbersome procedures (I.11), interpersonal conflicts (I.1), and the emotional toll of community work (I.12) were noted by highly active women as sources of stress. Convincing others and managing diverse opinions in participatory settings can be tough, sometimes diminishing their enthusiasm (I.12).

5.1.5 Exposure in public life

Exposure refers to the opportunities women create or receive to engage with public life. Interviewee 3, for instance, was included in a UC to develop a local road by her husband and other men, purely to meet the quota. Although her role was initially tokenistic—limited

to signing documents—she gained insight into the process. She now believes she can meaningfully participate and even take on leadership in the future.

This policy-driven inclusion has also influenced spaces where women's participation is not mandatory. For example, even though Neighborhood Development Associations (NDAs) are not legally required to include women, many still do, according to a secretary of a ward committee (I.11). Similarly, when organized public meetings or formed some public committees, nowadays, women are included (I.8, I.10); even when women are not interested (I.12), women are 'pushed' to participate.

Some women gain exposure through recommendations from others, especially female ward members who share information about participatory opportunities:

The ward, through ward, we are informed. Yes, ward member [calls me/us]. [Also] there is a coordinator for women's and children's programs in the ward. She calls us. ... Anyway, everyone attended that program [public hearing], and they put their likes and dislikes there. We participated in that program. ... we listened, just listened. It was our first time, so we just listened. Anyway, it was an experience. We got a basic idea of how to deliberate about the things we don't like. (I.2)

Sometimes women who initially lack interest or awareness are encouraged by their communities to get involved. For instance, a 34-year-old educated woman with two children (I.12) was asked by her neighbors to join a UC for constructing a road in front of her house. Though initially hesitant, she eventually agreed. She later shared that the experience helped her understand how public projects are managed. It boosted her knowledge, skills, and confidence to handle public responsibilities.

Other women are exposed to public life through their '*professions*.' FCHVs, for example, frequently interact with local government officials and community members due to the nature of their work. As a result, they tend to be more informed and engaged. An FCHV utilized her knowledge, skills, and social networks to participate meaningfully. She was involved in at least four UCs and led two of them, successfully completing the projects (I.13).

Similarly, I.1 worked for an NPO in community mobilization. Her job provided her with public speaking skills, social networks, and extensive exposure to local governance. Over time, she became more drawn to public life, participated in various events, and eventually won a seat as a female ward member in a WC. She mentioned:

It's like this. First of all, I was looking for a job. When I started looking for a job, I joined a social organization. After joining a social organization, the work to be done

there was such that I had to go out and interact with society. Then I became more interested. Then I started to find it easier than doing my 10-5 duty in a job. After getting immersed in anything, you want to immerse even more, right? That's why I didn't like to do a 10-5 job at the time. My interest in social work grew and grew. That's how it happened. (I.1)

Interviewee 15 began participating in public life 15–20 years ago (I.15). Then, a newly married woman with a secondary education, she was approached by women working with an NPO. Though initially reluctant, she gradually became involved, enjoyed the experience, and eventually developed into a confident leader in participatory mechanisms. Many similar stories highlight how hesitant women, once pushed into participation, eventually find joy and purpose in their public roles. In contrast, non-participant women often lack such exposure. They either do not have access to opportunities, do not seek them, or decline them due to busyness, fear, lack of interest, or self-doubt (G.1, G.3). They believe they "don't know how things work," but also acknowledge that 'the only way to learn is to get involved.'

5.1.6 Social networks

Women who engage in high levels of social interaction—whether through their jobs, businesses, personal interests, or other factors—tend to have strong social networks. A social network can be defined as the relationships a woman maintains with individuals and institutions in her community that enhance her capacity and influence.

For example, Interviewee 14 has been involved in various social service activities such as flood rescue and relief efforts, as well as feeding stray dogs and birds. Interviewee 1 was involved in an NPO, which gave her the opportunity to interact with people and create a network. Interviewees 3, 6, and 13 are FCHVs; their profession involves a high amount of interaction with people, especially women and girls, as well as LG officials.

Social interaction also leads to recognition. Being part of a broad social network means being known and acknowledged by many people and institutions, which provides a sense of belonging and credibility. Many women are drawn to participatory spaces partly by this desire for recognition.

... all the women who have come out now, have come to be someone. It is not because of the greed that there is money in it. They have come up with the thought that this will bring a name, they will get a chance to be known in front of everyone, right? And because of that, I felt that there is a name greater than money, even those who earn money are looking for a name after earning money. Now there is a name in it. Now, even if someone is not known by anyone in the ward, after becoming a ward member, they are automatically known in the ward. This ward knows her, the

next ward knows her, and even higher up everyone knows her, because her name is coming up, women are more interested. (I.1)

While women's groups primarily foster connections among women, participation in UCs and NDAs provides rare and valuable opportunities to network with men as well. Both participant and non-participant women have emphasized that building relationships with men in such spaces is especially useful when it comes to carrying out social responsibilities. The secretary of a women's group put it like this. "Sometimes, if we work with men, it will be easier for us to exchange knowledge. I should have told the ward members to get a chance to work with men (G.2 P.1)."

"I don't have friends like that? If I had friends like that, they would call me and say, 'Hey, let's go.' (G.1 P.3)." Peer groups or friends' circles also influence social network strength. Non-participant women often note that they lack friends who are active in community participation, which reduces their exposure to information and encouragement. In group discussions, many women emphasized the importance of having friends in women's groups, not only for sharing responsibilities but also for mutual support and motivation.

5.2 External factors

External factors are those beyond a woman's control, related to other persons and institutions. These factors can directly influence women's level of participation by shaping the supply side or determining the environment. More importantly, they affect the functioning of individual factors within a woman.

5.2.1 Organizations

Local government and the officials

In the context of LMC, several institutions play critical roles in shaping women's participation in PGMs. These include LGs and their elected officials, political parties, NDAs, women's groups, and religious institutions such as the '*Guthi*'⁷. The interviews, group discussions, and a series of conversations with LG officials indicated that the LG is the key promoter of participatory mechanisms—including planning meetings, small-scale development through UCs, public hearings, and participatory project monitoring. These initiatives are top-down in nature, initiated and managed by the LG, with citizens being invited to join rather than initiating the processes themselves.

⁷ Guthi is a traditional socio-cultural system of the Newar community in Nepal. It functions as a social organization that manages land trusts to support the socio-economic status of its members.

LMC is administratively divided into wards, each governed by a WC that operates through a ward office. A WC consists of a chairperson and four members—two of whom are women elected through reserved quotas. Additionally, the ward office is staffed by non-elected officials such as the ward secretary, engineer, and administrative personnel. These officials are either locally appointed by the metropolitan city office or selected through national-level competitive examinations. This structure results in two types of key actors: elected officials (*jana-pratinidhi*) and non-elected street-level bureaucrats (*karmachari*).

Among these, elected officials—especially ward chairpersons—play a pivotal role in enabling women’s participation. Actively participating women often credit the support and encouragement of their ward representatives.

... When the previous ward chairman was Mr. A [name withheld for confidentiality] was our ward chairman. During his time, the women sisters did not know about the programs at all. I did not know about some things either. I would not have known either. Even when I came to the ward, we were not informed about the programs of the women sisters. Our current ward chairman and female members must have thought that women should also be made aware. That is why the sisters know a lot about the programs. Programs have also been held. They have held a lot of programs since their time. That is probably why the women sisters have participated a lot. (I.7)

The chairperson is central not only to the ward-level development planning and budgeting processes but also holds a seat in both the municipal executive and assembly. Their influence is often measured by how they respond to citizen demands—especially in terms of allocating budgets for local projects and programs. The attitude of ward chairpersons towards women’s participation was consistently identified as a key factor. Supportive officials not only recognize active women but also provide them with timely information, assign them roles, and facilitate their participation. Some of these women have become so empowered that they are “considering running in the next local elections (I.7).”

According to the officials, each ward receives a budget ceiling from the metropolitan office, within which it can independently fund small-scale projects. Larger initiatives are submitted to the municipality for approval (I.16). However, community members often lack understanding of these distinctions, leading them to judge elected officials based solely on whether their requests are fulfilled. This makes informal relationships with ward chairpersons particularly influential, as such connections can directly affect whether projects are funded.

Most of the women interviewed for this study indicated cordial and supportive relationships of these women with both elected and non-elected ward officials, such as ward secretaries. In fact, many of them were personally invited by officials to participate in meetings and events.

In contrast, group discussions held without the involvement of LG officials revealed a more skeptical view among participants regarding the responsiveness and inclusiveness of local governance. Some statements of participants in group discussion 1 related to how annual development planning is carried out in the WC's office are given below:

P. 6 : If we had been called, we would have gone [to participate in planning meeting] ...

P. 4 : Only the few who go there [regularly visit LG office] know about it. I don't know if it's because we're not going. ... Those who are involved in politics or parties keep getting calls about this and that ...

P. 1 : They [the people in contact with LG] will also get the [projects]. Who gets the project? [the LG official's] favorites. ...

P. 6 : Those who can speak gets [benefits], those who can't speak get nothing. That's how it is. That's why I think the VDC (LG) should also pay some attention.

This contrast further illustrates how existing relationships with local authorities influence women's access to participatory platforms.

Within this framework, female ward members play a specialized role, often serving as focal persons for women-related programs:

In terms of women's participation, women members [female ward members] have a much bigger role than the ward chairperson. Being a woman member makes it much easier for women sisters to participate in programs. ... If you have women members, you understand that women sisters need this kind of program. ... It seems that women understand women's issues more than men. (I.7)

While their involvement ensures some level of gender representation, it also creates a narrow perception that women are responsible only for "women's issues" rather than broader development agendas. The level of difference a female ward member can make depends on her own capacity, as put by a female ward secretary:

Practically, some, it also depends on their ability. How much of a stand can they take, how much of a free time do they have, right? ... It also depends on whether others have promoted them or whether they have come up themselves. And if others have raised them saying, "You stand up for our party, or you stand up for yourself," that's just not effective. If someone has come and said to herself, "I will do it," it has turned out to be good. Especially for women, youth, and children, isn't it? And in terms of forming youth clubs, mobilizing youth, and for children, the role of women representatives has been relatively good – for the target group. They

don't have much of a hand in building infrastructure. But it's good in terms of social welfare. (I.10)

Political parties

Political parties often empower their female members by assigning them responsibilities, providing exposure, and grooming them for leadership roles. These empowered women tend to be more influential in participatory processes. For example, respondent I.1, a former female ward member, was appointed to an important role by the current ward chairperson, who belongs to the same political party. Her political affiliation has amplified her influence in local planning processes, and her voice carries substantial weight. Similarly, respondent I.7, who serves as the secretary of a ward-level unit of a major political party, has assumed a leadership role in the participatory planning process. Because the ward chairperson and a majority of the WC members are from her party, she has been able to mobilize women, form UCs, and contribute to the successful implementation of small-scale infrastructure projects.

However, despite these positive examples, political party structures at the local level remain *male-dominated*. Women are often included in party activities tokenistically or in subordinate roles, limiting their ability to influence broader party agendas or decision-making processes:

In this male-dominated country of ours, they try to suppress the voices of women. No matter which party it is, let's talk about my party. When I say I want to run for president in my party, men won't let me. [They say], "You are a woman, you should run as a woman member." They say, "You can't be president." They don't support us at all. [Her voice gets a little louder.] Even my own party doesn't support me. (I.4).

Women's groups

In LMC, women's groups have emerged as one of the most influential stakeholders in local governance. Initiated and promoted by the LG, particularly through its Social Welfare Division, these groups are formally registered entities primarily engaged in saving and credit activities, along with implementing trainings, sanitation campaigns, and social mobilization programs, according to an official working in the division (*researcher's field diary*).

In the planning phase of the annual development planning process, also known as the budget-making process, women's groups are key stakeholders. They participate both in public meetings and in submitting applications to express their demands. A ward secretary (female) acknowledges women's participation as below:

Women participate significantly. Their groups are called - every group. And ordinary women are also present. Each group, we, we, have to call the group to “what plan they want”. They come to the ward meeting with their demands for their plans. (I.11)

In public meetings, women's groups are invited as representatives of women, while in the application process, they are among the stakeholders submitting requests for necessary programs and projects. The same secretary added,

Nobody [decision makers] cares about individuals. They [women] have to come in groups ... they have to register as women's groups. And all the programs go through the groups. ... They have to join women's groups. They do, almost all of them. All the women in the neighborhood join groups. ... Women's groups include women... all women... They have meetings. They bring us demands according to their decisions. They [elected officials] don't look at individual demands as much as possible. (I.11)

Interviews, observations, and group discussions revealed that women's groups have been tasked with implementing small-scale development projects—such as capacity-building programs, income-generating trainings, and even infrastructure development through UCs—demonstrating their growing operational and political significance. During fieldwork, it became evident that women's participation is largely funneled through these groups. LG officials, citizens, and even male ward representatives consistently identified women's group leaders as the most appropriate respondents when discussing women's participation. In interviews and informal conversations, ordinary women deferred participation-related inquiries to women's group leaders, stating, *“We don't know these things; ask the women's group leaders.”*

Moreover, the flow of information and access to participatory events is often limited to members of these women's groups. Women who are not part of such collectives are typically excluded from key information channels, thereby limiting their opportunities for engagement. In a group discussion, a woman without experience of participation in participatory governance arrangements said:

If we were in that women's group or something, we would have participated, but now we are not in that, that's why. If we went to those women's groups, we would know everything. Those who are not in the group don't know, right? If we were involved in a group ... such and such training is coming ... (I.2 G.1)

Neighborhood Development Associations

Tole Vikas Sansthas/Samitis (Neighborhood Development Associations) are influential institutions and key stakeholders in local governance. These associations are formed in nearly every ward and neighborhood, ideally comprising residents from closely connected

localities. To function officially, they must be registered with the LG. Based on conversations with people during fieldwork, it was found that NDAs are key institutions at the ward level. However, their ability to make an impact depends on how much importance the WC—especially the chairperson—gives to them, or whether they were empowered by officials. In many cases, the ward office considers its recommendations necessary for allocating budgets related to construction and maintenance projects within the community. In an informal conversation with a male ward chairperson, the significance of NDAs and its importance to him was expressed as below:

NDAs are key parts of local government. They look after local affairs such as local conflicts, issues related to local roads, drinking water distribution, sanitation, and sewage. Such issues are resolved by NDA at the local level before the issues come to us. We also write in budget like xxx amount for xxx project in xxx NDA, then they decide where to spend the budget in their neighborhood remained within the project type.
(adapted from researcher's field diary)

These associations play a crucial role in both the formulation and execution of development plans. According to a female officer, NDAs are regularly invited to planning meetings, and their project proposals are often given higher priority than those submitted by individual residents:

Mainly, you send a letter [of invitation] to the organizations- Neighborhood Development Associations. Now, the representative of the NDA is invited by [LG officials] saying, “ [At least] one person should come [from that NDA]”. ... Does the municipality also call women's groups, call people from the NDAs - that's what it does. ... people are a little bit active in this [planning meetings] individually, right? But mainly, the NDAs are more active.
(I.10)

However, despite their importance, these associations are overwhelmingly male-dominated. During the field visit to several wards, it was found that none of the associations were headed by women. Most associations have male presidents. In some cases, women serve as treasurers or secretaries, but these roles tend to be symbolic, with little actual authority or impact. Decisions and actions are largely guided and made by men. According to a sample procedure for the formation and mobilization of NDAs, which was prepared and circulated to LGs by the Ministry of Federal Affairs and General Administration (MoFAGA), the executive committee of an NDA must include women in at least one of the positions of chairperson, secretary, or treasurer. However, the aforementioned procedure is just a sample one, based on which an LG can issue its own legal framework for the formation and operation of NDAs. Nevertheless, so far, LMC hasn't issued its own procedural law guiding the formation and mobilization of NDAs.

Religious Institutions

In the Newar community, a religious institution called *Guthi* is one of the influential bodies. These *Guthis* participate significantly in the local planning process. An educated woman without significant experience of participation expressed, “And here in our community, there are many *Guthis* and clubs, there are many, so if you are in that group, then you will be linked to the ward (I.1G.1).” However, they are headed and led by men, while women hold subservient positions within them. A female ward member noted:

What happens in the ward assembly here, sir, there are four *Guthis* here. Just like the chairman and secretary in the committees, there are four to five people in the *Guthis*, four to five people who are considered to be important, people we respect. By gathering such important people and having two or four advisors in our society, we organize such gatherings [planning meetings]. ... *Guthis* only have men. ... There are no women, only men. There is no male or female. ... This is the rule of *Guthis*. There can be no women. (I.4)

5.2.2 Support

Family

Most women interviewed or who participated in group discussions pointed to family support as the most essential factor for participation. A highly experienced woman in the public domain explains family role as the most important factor for a woman’s participation:

The most important thing is that the family should be very supportive, the family should be very understanding, that's the first thing. When the family accepts whatever comes, then only the society accepts it. Society is trying to bring down women as much as possible. The family should be a very civilized family, an educated family. Number one is the family, the role of the family is the most important, like some women, even when they want to come, the family does not let them, some women do not come even when the family tells them to go. Because of that, if the family understands, then there is support. (I.1)

It is not only about participating in public life but also about whether the family accepts a woman going out of the home and being involved in the public domain. The family's perception is crucial. Their level of understanding matters—how they view a woman's participation and engagement in public meetings, spaces, or domains. If a woman fears how her family will react to what she says in public, she may hesitate to speak due to concerns about potential reactions at home. A woman highly active in politics, who has significant experience in public participation, explained:

“For women, however, [the obstacles] will be within the family. Now, when I say something, if I go to an event and speak there, will my family criticize me for saying the same thing? Women also have that fear. Men don't have that fear. Men are free to speak. Who will stop men? ...[Something] might be said [in a public

meeting]. For the thing spoken in the meeting, you can be tortured by your family members, ... (I.7)

Women evaluated family support based on how household chores are shared. In nuclear families, support from the husband is important. In joint families, support from other members—especially female in-laws—is key, as most women interviewed were married. Since women often prioritize their children, they are concerned about who looks after them when they are away. They also worry about other caregiving responsibilities, such as caring for sick or elderly family members or persons with disabilities.

Women tend to prioritize family—children, husband, and other members—above all. Many interviewed women had sacrificed their careers and education for the sake of family. For instance, I.3 dropped out of her bachelor's degree when she got married. I.14 resigned from her permanent and secured job to raise her kids. I.12 gave up her study and potential career to support her husband and raise her kids: "That's why I can't be fully involved. I can't give full-time anywhere. Because I have given my family my first priority now. I have sacrificed everything for that (I.12)."

Women's participation in public meetings may not be meaningful or effective because they cannot fully focus. Their physical presence may be in the meeting, but their minds are at home—thinking about whether the kids have eaten, what they are doing (I.10), and the chores piling up. They worry that staying longer in meetings might prevent them from finishing their household duties. I.2 shared her experience of participating in a public hearing, mentioning that she had to leave early because the program was somewhat lengthy, and she needed to return home to complete her household chores.

Most women acknowledged their husbands' support as the most important factor within the family. A supportive husband not only allows a woman to go out but also provides advice during difficult times, shares responsibilities, and engages in discussions. Some husbands even encourage their wives to represent the household in the public sphere. The most important elements are trust, love, and the strength of the relationship between husband and wife. A woman actively participating in community events explained her husband's support:

[I am able to participate, probably because it is not that strict at home. Maybe because I can leave freely when I say I have to go. Whenever I say I am going ... when I say I have been called to such and such a place [my husband] never stops me. ... Now I have to go from here to there, even then he will take me, bring me [my husband], and I will go. (I.1G.3)

For senior women, children's support is also important. Many older women have free time, and their children encourage them to go out, learn new things, and enjoy life (G.1 P.6, I.14). Information exchange among family members also plays a role—whether they talk about public and community issues at home (I.1, I.6, I.16).

Community

Some community members are supportive, while others are critical. For a woman with substantial experience in public participation, in the beginning, criticism was discouraging, but with experience, her ability to cope with it increased:

At first, it was a little painful. Now, I have experienced a lot. Now, nothing like that happens to me. Now, nothing happens to me, whatever people say. All that is the thing from the past. Now, when they say bad things, I feel like I must have done something good. When they say good things, I feel encouraged. When someone says bad things, I feel like I could achieve something. (I.1)

According to some women, although people may not express negative opinions openly, changes in their behavior can be observed. Comments made about active women eventually reach them, causing stress. It is difficult to ignore what people say. A woman, highly active in public life, expressed this as:

Some people say it's good, right? Some people are happy. We say what we know. And sometimes, when they say it, it's like, "They're just going to get paid." They call us "those who go to employment", "those who go to employment", "those who go to work on allowances". People say it the way we hear it. It's not fun to hear it that way. That's what they say. Some people say, "They went because they got paid, otherwise they wouldn't have known?" Other people say, "That's what they call you." They probably say it. (I.6)

The community's perception of women is different. A woman strongly believed that she could handle criticisms, so she moved forward; otherwise, she would have fallen behind:

What happens is that after standing in the public forums, you have to face many things. Like now, if I stand in this place, then the eyes that look at me from many sides will be different. For a woman, it is different. Then, if we can face such things, if we can overcome them, then we can move forward. No, now those who can't, they are left behind. That's how it is. (I.1)

Although community attitudes are gradually changing, many women still feel that their voices are less prioritized. Their knowledge is not equally respected, and their opinions are not treated with the same importance:

Even when we get to the place [public meetings], when we sit in meetings with men, women's issues are discussed a little less [than those raised by men]. ... Even when we go to raise issues, participation is reduced, and even when we speak up, our voice is considered or not. Do we get a response to what we say here or not?

Voices are raised, but there is little real action. After we go [participate] and even if the issue is raised there, there is little recognition of it. (I.1)

In the Newar community, women mentioned that their society is more conventional and tied to tradition. However, they acknowledged that things are slowly changing over time. A woman with significant experience in public participation, who was recently elected as a ward official under the female quota, said:

Here, each of our ethnic groups has its own customs and traditions. We are a society steeped in tradition,... Newars in particular, but we are still not able to fight for our own. Isn't it? Yes, yes, everything from our religion to culture used to limit us to the house, right? Gradually, more and more people are fighting for it. Voices are coming out. Encouragement and courageous voices are also coming forward, but that's it. For every person to succeed, a family should also support them, right? It's a matter of how long you fight and how long you reach the top when you are alone. (I.8)

Women also talked about a tendency in the community to pull others down, which discourages those who are trying to step out of the home and become active. A woman with recent experiences of public participation said:

It is very difficult in the context of Nepal. There is a lot of leg-pulling. I didn't think it would happen. What I thought was that if I did the right thing, I wouldn't be afraid of anyone's opinion. But ... [Even if I am doing good] when they show me that I have done wrong, and when they come together, it doesn't encourage people. People feel discouraged and don't feel like doing it. What should I do now when I am told that I will not get any recognition even after leaving my job, leaving my family, and working so hard for you? It is difficult, very difficult. (I.12)

Despite this, many women believed that the role of the family is more important than the role of the community. If the family is supportive, discouragement from the community matters less, as came forth in the group discussion number one:

P.2: You should receive support from home, yes. Now if my mother doesn't look after my child, I wouldn't be able to come here, right? Well, "you go and I'll look after the child," so I feel relieved. We were able to earn money, do some work. ...

P.6: The family members should also understand. If they don't understand, then women can't do anything.

P.2: Even when you go somewhere, if you say you can go, then it's different, if you say you shouldn't go, you can't go, then you can't go anywhere. You can't get it. Ah.

P.6: If the family asks like this, why, where, what, then after saying where you went, why did you go, how long did it take, and then they say this and that, right? I want them not say anything about it anymore, right?... The family members should understand. They said that it happens in some places. Right? Now, the husband doesn't know, problem occurs, when he doesn't understand. He should understand... the problems of home.... The son doesn't say anything, only the old man [husband] says that I return on time, leave on time, but my son lets me go wherever I want, right? That's it. ... Yes, mother, where do you have to go, he says, "Go." That's why I came here. The son says, "Go."

Questioner: Whose support is most important in the family? Husband, mother, mother-in-law, children, sister-in-law, who?

All women [together]: Everyone.

P.3: If I lived in a joint [family], everyone's support matters, right? But, my family is nuclear and my husband supports me, [that's enough for me] ...

P.6: Husband's [support is most important].

P.3: Husband should support me. ... Mother-in-laws could easily be handled, then, right?

P.6: If the husband is understanding, ... the wife will be happy. I think so too [She laughs].

Institutional supports

The role of institutions in creating an overall environment for participation was discussed in a separate section. The findings on how institutions supported women's participation in the study area are presented here. Institutions, especially government bodies and NGOs/NPOs, organized several trainings aimed at empowering women. These included skill development and income generation training, which helped women become more independent, active, and better able to manage household responsibilities. In addition, according to a ward secretary, soft loans were provided to support their economic activities (I.10).

Women's groups have been formed and targeted for such programs. Awareness-building and legal literacy trainings have gradually increased the overall awareness level in the community, creating a more positive environment. Trainings in leadership, management, and public speaking have boosted women's confidence and capacity. A senior woman leading a women's group explained how the trainings conducted in her group helped women develop confidence and capacity:

Now, in terms of group work, we know that the sisters in our group were not very literate, even though they were literate, they could not speak clearly. And, as we have done this accounting training, speaking training, people need speaking skills like an announcer, they also have to be able to stand up and speak. If you ask me to stand up and speak, I might not be able to speak now. I have spoken sitting down. That's it. Regarding these and other things, we have done a lot of inspiring work as a group, which is skill-based. (I.14)

Women officials in WCs, elected through seats reserved for women, played a key role in allocating budgets for these trainings, which support both financial empowerment and personality development. Literacy programs, such as adult education campaigns, have also improved literacy among women who missed the opportunity to attend school when they were young. Often, according to LG officials and women's group leaders, it is the women's groups themselves who demand these trainings from the LG (I.11, I.14). In response, LGs allocate budgets and allow the groups to organize and conduct the trainings.

Most women expressed that they need not only income generation training but also leadership and participation skill development training to make their participation more meaningful and effective. They noted that women's performance is often criticized or seen as weaker than men's. However, they explained that men have been involved in public roles for a long time, while women are only beginning to step into these spaces. Instead of facing criticism, they hope for access to training, advice, and guidance from more experienced individuals, including men. A woman with some recent experiences of public participation noted:

It is not like that women learn everything as soon as they come. Men have been working since before. What kind of work did men do before them? How did they do it? What went wrong? Women also had to be taught the same thing. Instead of saying, "What kind of work can you do when you come?", they had to support women by observing their own work and showing them how much they could do. (I.3)

Having someone to guide and Active women as role models

Active women generally had some source of inspiration. For instance, I.1 was inspired by a local political leader who is now the ward chairperson of her ward. She herself is a former ward member and is currently appointed by the ward chairperson to an important role in the ward office. She acknowledged his support and guidance during difficult times and described him as her inspiration to move forward. In fact, it was the ward chairperson who referred to her as the most active woman in the ward. She also shared how she has guided other women to step beyond the narrow scope of home and engage in broader public activities.

Similarly, I.7 began participating in social activities right after completing her studies because the current ward chairperson—then a politically and socially active leader—encouraged her. She acknowledged his prominent role in her life, stating that he introduced her to social and political engagement and taught her how to be active in public life. As a result, she is now highly active and influential in local governance. She also shared how she encourages other women to participate in public life. She has significant experience in completing small-scale infrastructure projects through the formation of UCs. She proudly shared that she has facilitated the formation of women's user committees, sometimes composed entirely of women, and under her facilitation, these committees have performed exceptionally well.

Likewise, I.12 shared her experience of working as a treasurer in a UC and how she was guided by a senior man, who was the committee president. She learned a lot from him and

later went on to lead a UC that successfully completed the construction of a small local road in her neighborhood.

Most of the actively participating women interviewed acknowledged having someone—whether from family, community, workplace, political party, or elsewhere—who guided them through the nuanced world of public participation. A woman with multiple involvements in participatory forums explained that less active women often need someone to guide them, and having such guidance is very helpful for their participation in public life:

To increase their participation, they should be treated in this way. Again and again, I mean, there should be someone who has a good experience, who takes them together, for example, me, let's take my example, if they find such people, they will involve and speak, suppose, if I speak, they will find some support. If such happens, I think, they will speak. They will engage. They will dare to speak in public meetings. Yes, women are fewer than men, among the people who speak. Nonetheless, there are few, who have been applying efforts. (I.5)

In contrast, non-participating women expressed frustration that they don't know what to do or how to do it because no one has ever guided them. They said no one from the LG or any other agency informed or invited them. As a result, they remain confined to their own world of home and office and do not yet see public participation as necessary for them:

We don't know anything [about public participation]. They [LG] haven't informed about anything. If we were informed, we would be participating. Really, we know nothing, nothing comes from even the municipality or ward office. There is no one to guide us. We are just confined to our world. (I.6 G.1)

5.2.3 Policies

Quota system

The Constitution and Local Government Election Laws have ensured women's representation in LG through reserved seats. For example, each WC consists of one ward chairperson and four members, out of which two seats are reserved for women—one specifically for a Dalit woman. This legal provision has guaranteed women's presence in LG. Although women can also contest for the other three open seats, in the study area, women were elected only to the two reserved seats—except in Ward No. 5, where a woman won an open seat.

Mandatory representation has given women hope that if similar quotas are increased in other governance mechanisms, their participation can be better ensured (I.1, G.1 P.1). Women believe that those elected through quotas represent other women and help promote

wider participation in other PGMs. These women can also serve as role models, sources of inspiration, or guides for others:

There is positive effect of quota system in local government because after a woman became member, another woman could easily go to her and tell her about women's problems. And the member herself a woman, she knows a little more about, "What should I do for women?" than a man. In that work, I think she is a little better than their [men's] work, so far. (I.3)

However, women's mandatory representation is not guaranteed in public meetings organized during the annual development planning phase. According to a ward secretary, several wards did not even conduct such meetings, and where they were held, they were often carried out just as a formality. This planning phase is open to all, but there is no mechanisms that ensure compulsory representation for women.

In contrast, during the implementation phase, women's participation is ensured in UCs. According to the *User Committee Formation, Mobilization, and Management Procedure, 2078 (B.S.)*, 33% of a UC's members must be women. Furthermore, at least one of the key positions—president, secretary, or treasurer—must be held by a woman. However, some women reported that they were asked to join only to meet quota requirements. They were not properly informed, and group decision-making was not followed:

[Membership] is said to be taken, but I don't think it's right to do so just to show off and to achieve the same women's quota. ... Because we, the people who are not involved, the people who are already involved, should explain the whole environment there – "This is how our budget comes. We can demand this and that. We can enjoy the facilities that come to us", right? By saying that, we also add a few things, opinions, suggestions, and ideas to it. If everyone discusses it instead of one or two people making a decision, the best decision can be made, I think. (I.2)

For instance, I.3 became the treasurer of a UC formed to construct a local road near her home. She was hesitant at first, but her husband insisted she join because the position required a woman. Her involvement was limited to signing documents, although she was at least briefed before doing so. Based on her experience, she feels that even if participation was tokenistic, it was still better than being excluded altogether, which might have been the case without quota policies:

No, [the chairman] was a man. There were probably only two women. Anyway, they put it somewhere that women should participate. In a way, it is good. Now, gradually, others will gradually advance in positions. If they don't participate, it doesn't make sense. ... When I was the treasurer, I thought that if women were also allowed to participate in the same way, I didn't really know. If I had been able to give time now, maybe I would have been active in other [opportunities] as well. Similarly, if others were given the opportunity to participate, those who have the

ability will get the opportunity, I thought, it was good. Otherwise, it would always be just men. It was only because there was a place for women that men also gave a chance, otherwise they wouldn't have given it. In that sense, active women should be considered to have got the opportunity. (I.3)

On the other hand, NDAs aren't bound to any policies that ensure mandatory representation of women. As a result, there are no NDAs led by women in chairperson roles. However, due to increasing attention to gender inclusion, women are now being included in lower-level roles such as secretary or treasurer, according to a ward chairperson.

Most women interviewed acknowledged the growing trend of including women in governance. They believe that all governance mechanisms should involve women. While active women are using the opportunities created by such policies, many non-participating women, despite being aware, are less interested or choose to sacrifice their time and opportunities for other responsibilities. For example, a piece of conversation from *Group Discussion 1*:

Someone: If there is no quota, it seems like there will be no participation of females. It was specified that there must be this many, right? That there must be girls. ... Otherwise, there would be boys everywhere. ...

P.2: ... Wherever it is included that there must be this many girls. ...

P.1: Even so, how many, no, [women] must be included, right? Even if the qualifications are slightly less, they must be included. Even if they don't know, one must be present.

P.2: You don't have to do anything. Just sign. ... Even when you bring that. ... Just for that...

Women-targeted programs

LGs have implemented various programs targeting women's empowerment and addressing their interests. These women-focused programs are generally overseen by the female members of WCs. According to a ward secretary, although women's participation in infrastructure construction and maintenance remains lower than that of men, their participation in targeted group programs—such as skill-building and income-generation trainings—is notably high:

What about the presence, sir, in this matter, in development and construction-related activities, the presence of women is a little less. Some things are focused on the target group. In such matters, the presence of women is a little better. Then, the focus is on women, the focus is on people with disabilities, there are other skill-based programs, and the presence of women is good in those too. (I.10)

These programs include capacity development, livelihood skills, and other empowerment initiatives. According to another ward secretary, a specific percentage of the ward-level budget is allocated annually for women's empowerment (I.11). The female WC member is

typically responsible for managing this budget and often does so by mobilizing women's groups.

For example, as shared by a ward member (female), each women's group in her ward receives a set amount of funding—NPR 15,000 per group—to conduct their annual general assembly (I.9). According to another secretary, such budget support from ward offices is a regular practice to encourage and sustain women's group activities (I.16).

Other gender related policies

There are several policies at the federal, provincial, and local levels that aim to promote gender equality, equity, women's empowerment, the reduction of gender-based violence, and the capacity development of women. For example, LMC, the study area, has enacted the *Gender-based Violence (GbV) Prevention Fund (Operation) Procedures, 2024*. This policy aims to establish and operate a local GbV prevention fund, which will be used for rescue, relief, medical treatment, and other related support activities for GbV victims in LMC.

According to a ward secretary, the implementation of such policies is helping reduce inequality between men and women. These efforts are empowering women, making them more aware of their rights, and increasing their confidence and capacity to raise their voices and claim their stake in PGMs (I.16).

Cumbersome government procedures

The procedures set by the government, especially for participatory development—such as participatory small-scale infrastructure construction and maintenance through user committees (committees of direct beneficiaries)—are quite cumbersome. They require a long time, paperwork, and several steps. During the planning phase, most wards were found to be preparing annual development plans by collecting applications from citizens. An analysis of the applications received for the fiscal year 2024/25 showed that most applicants were men. Similarly, during the implementation phase, most small-scale projects were found to be completed through UCs, which were mostly led by men. Neighborhood Development Associations were also found to be mostly male-led (*field observations and conversations with officials*).

According to a former ward member (female), women are discouraged from participating in UCs because of the complicated and time-consuming processes they have to go through:

Women are less interested in participating in infrastructure construction. It can be said that they have not done much. Now, when I am not an elected representative, I have led in one or two [user committee] myself. I have done it as the chairperson. ... I have taught many women myself. From making a proposal to requesting a plan to completing it, even when I teach them one by one ... the government process is very long, it is a bit tedious, even for one signature, you have to go for three to four days, that is why women do not come much. (I.1)

5.2.4 Access to information

Although participatory meetings are officially open to all and typically announced through public notices, most women said they generally attend only when they receive a personal invitation. Women, in particular, are far more likely to participate when someone personally asks them. Once invited, they rarely refuse unless they have a more pressing obligation. Non-participant women often mentioned that no one invites them directly. They believe those who frequently visit the LG's office tend to be more informed.

Social media has also played a significant role in spreading information in recent years. A highly educated young woman working as a director in a local NPO said, "Some people don't even know. On Facebook, we see it because we follow pages and receive notifications there. If we don't follow those pages, we don't even know. Only a few people know (G.1 P.1)." LGs, officials, elected representatives, political party leaders, and citizens active in public participation often post updates on social networking sites (SNS), informing people of meeting times, venues, and agendas. Another woman said, "...when we organize any program, we don't call anyone. We post the information from our (women's) committee. After just posting the information (in SNS), 60-70 women gather (I.7)" While this has improved information access for many, women—especially older or less literate ones—are often disconnected from these virtual platforms (I.12). For them, social media posts have limited impact, as they may not use or understand these technologies. A senior citizen woman said:

I don't know anything about that either. They haven't said anything from there, have they? They haven't done anything like that. I don't even know. If we were informed, we might have participated. I don't know anything, they haven't said anything from the LG. (G.1 P.6)

Personal outreach remains the most effective way to inform women, primarily through networks like women's groups. Leaders of these groups, typically the presidents and secretaries, are connected to ward-level women's committees—a network that includes all women's groups in a given ward (G.2, G.3). Local government officials, usually the female ward member acting as the focal person for women's affairs, provide these leaders with

information about events, training, and meetings (I.9). The leaders then disseminate the information to their members through face-to-face meetings, phone calls, or messages via SNS platforms like Messenger, Viber, or WhatsApp. This method of communication has proven to be the most effective, particularly for events involving women's group activities (G.2 P.1, G.3 P.2, I.12).

Women's groups are increasingly becoming key stakeholders in their communities. Group leaders, particularly presidents, are often invited to public events such as public hearings (I.13). However, group members usually receive information mainly about women-specific activities—such as training programs, sanitation campaigns, or volunteering opportunities at religious events—rather than general planning meetings (G.2 P.1, G.3 P.2). Many non-participant women mentioned that they remain uninformed simply because they are not members of any women's group (G.1). This highlights the critical role of such groups in keeping women updated and engaged.

5.3 Structural factors

Structural factors are the broad cultural, social, economic, and political systems that shape people's lives and opportunities. These include things like gender roles, belief systems, cultural systems, and how power and resources are distributed in society. They often affect women's ability to participate by creating advantages for some groups and barriers for others.

5.3.1 Culture

Culture is what people learn from previous generations and pass on to the next. It shapes various aspects of life, including gender roles:

As for the division of work, our culture is like that, if children were not trained from their early childhood— the son would do this work, the daughter would do that work, it would have been different. The main thing is that in our culture. In our generation or the generation after us, the division of work without distinguishing between boy and girl from childhood, different culture would be set. (I.1)

The outside world for men. Our culture is that women should look after the inside, and men should look after the outside - men should do external work like development and construction. ... Women should also look after the housework. Now they have to look after the children, cook and feed them, if there is an elderly person in the house, if there is a disabled person in the house, it is also a matter of time. One thing, as I said before, may have been culturally determined. ... And what happens to women's inner thoughts is that my belonging is to the family rather than to society. That is the culture that I have been learning. (I.10)

LMC is a diverse municipality composed of several ethnic communities, among which the Newar community is the most prominent and indigenous, with a significant population. According to interviewed women from this community, the Newar society tends to be more traditional and conservative compared to non-Newar communities in the study area. In general, women in the Newar community are expected to focus more on household responsibilities, whereas men are more involved in activities outside the home:

C: Our *Newar* is a little behind. ... It is difficult to speak. That is scary. [A: Language problem]. A little shy. Newars are very shy. They are very shy to move forward and talk.

A: ... A little behind ... "Oh, I won't come, I won't come," they stay behind.

C: This *Kshatriya Brahmin* [another ethnic group] is not afraid to hold the microphone in front and talk. Newars are ... We are a little [A: Sit in fear] afraid, something like that [A: They always say "no, no, no" in everything; B: Our *Newars* are always "no" in everything] Yes, yes, that's what happens most of the time. (A piece of conversation from group discussion G.3).

However, women from other ethnic communities also acknowledged that their cultures similarly prescribe gender roles, often assigning women to domestic duties while men engage in work outside (I.10). According to a respondent— a ward member female from Newar community, LMC can be broadly categorized into two zones: the core area, predominantly inhabited by the Newar community, and the mixed community area, which includes multi-ethnic populations from different parts of Nepal (I.8).

Many respondents, especially female ward secretaries, believed that women in the mixed community areas are more active in public life compared to those in the Newar-dominated core area (I.11, I.10, I.16). Women from the Newar community were often described as more reserved or shy. One ward secretary observed that, in her experience, women in Newar communities tend to participate less actively in comparison to those in mixed communities (I.11).

Ethnicity is also closely tied to language. Newar women primarily speak the Newari language. In public meetings attended only by Newar speakers, Newari can be used as the main language. However, such meetings are rare, as they usually include at least one non-Newar speaker—be it a local government official or a community member—making Nepali the default language of communication:

B: It is easy for them, [if the discussion is] in *Newari*.

A: But *Newari* language cannot be spoken in ward-level programs. There may also be *Kshatriyas* there. Because of the mix-up, *Nepali* language has to be used there.

C: It is difficult to move forward and speak because of the fear that the statement may give different meaning or tone may sound funny.

B: ... They also do it in Newari. If the madams [facilitators of meetings] are coming from the Newari [community], there are old mothers, too [attending the meetings], right? They have to be explained in *Newari*.

(A piece of conversation from group discussion G.3).

In these mixed-language settings, many Newar women feel hesitant to speak. They may lack fluency in Nepali, or even if they are fluent, their Newar accent may cause their speech to sound unusual, which makes them self-conscious (P.3 G.1). Some active Newar women shared that they often experience difficulties speaking Nepali during public events (I.4; I.15). Even within the Newar community, women are generally perceived to be less fluent and confident in Nepali than men, largely due to differences in their level of cross-cultural interaction (G.1).

There is also a generational difference in language ability. Younger generations are more comfortable speaking Nepali, reflecting their greater exposure to diverse social and educational environments (P.1 G.1).

Belief system

As a result of the patriarchal mindset deeply rooted in the societal structure, many men struggle to accept women in leadership roles. According to one woman (I.3), men often avoid participating in events organized or led by women, and this belief in women's inferiority is internalized by women themselves. She emphasized that the idea that women cannot perform equally or effectively as men still persists strongly in society:

And another thing is, even if we involve men in our work, whether it is gender differences or the view of society, they prefer to participate in women's programs a little less. ... Because even if we say equal, we must say that the difference has not completely come to our previous thinking. ... What do women know—our mentality is the same. For example, if we go to the hospital, there is a senior doctor but if it is a woman, we still look for a man, right? ... Even if told “She is the doctor”, we are often asked, “Is she? Isn't a male doctor here?” There is still a mentality in our mentality that—men, not women, hold important posts. (I.3)

Similarly, two female ward secretaries shared similar experiences: when they occupied the seat of the ward secretary, many citizens would enter the office and ask, “Where is the sir?”—reflecting the public's difficulty in accepting women in positions of authority.

A female ward member shared that men often feel threatened by women elected to WCs, behaving as if these women have taken something that rightfully belongs to them. She firmly believes that women are capable of outperforming men, but men are reluctant to relinquish control over spaces they have long dominated (I.4). She also noted that women who are outspoken or assertive in participatory forums are often criticized or stigmatized—

labeled as women who dominate their husbands or who have troubled personal lives. According to many of the women interviewed, women's voices are often undervalued in public forums compared to men's, and they frequently face a culture of "leg-pulling" instead of support. According to an LG official (female), this undermining behavior makes public participation even more challenging for women, who already face structural disadvantages and need greater encouragement and support:

... there were only women in that user committee. But what made them uncomfortable - I don't know who intervened or what happened. They made an estimate and moved forward. Later, another person came and said, "No, this can't be done. This doesn't fit our culture. Or what will happen? This pillar will disturb, what will happen?" and then ... the drawing designs, oh, that's what they were forced to change... The person who forced them to change... was definitely a man. ... And they [the women] were very frustrated - it would have been better if they hadn't taken responsibility. Even in what they were trying to do and had already done, obstacles came. There was no one to say, 'It's okay, they [the women] are doing it, let them do it, let's see how they are doing it'. Instead, they [the women] tend to make things uncomfortable. (I.10)

Some active women argued that the mindset among women themselves also contributes to their weaker participation. She observed that many women remain apathetic toward public matters and prioritize their personal and family affairs:

"Now, [thinking for a moment] What should I say? Now, me. That's how it is. You have to go to the place you are invited to, right? I believe that you should go to the place you are not invited to for your rights, and you should go to the place you are invited to where you can voice your opinion. But my friends don't have the same belief. They don't go. They don't care. They are doing well for themselves, their house is clean, they are keeping themselves organized, why should they speak for others? That's the way many people think. (I.6).

"One thing to note here is the mentality - our husbands are already earning, we have enough, why do we have to go out (I.12)?" Some women feel no need to participate, believing that the presence of elected female representatives is enough (I.11). Even actively engaged women, like I.12, struggle to gain support due to negative perceptions of those who take leadership roles.

The FCHV also recounted a time when she faced a discriminatory attitude from local government officials while overseeing a health post construction project as chair of a UC. Her file processing was delayed, and she felt she was treated differently compared to her male counterparts (I.6). Similarly, I.14 described how a senior and influential man from her community refused to sign off on a project she was leading, dismissively saying, "This work is done by women. Why would I give my signature to justify women's work?"

Despite these challenges, not all perceptions of women's participation are negative. One highly active woman, with extensive experience in UCs, asserted that women-led committees often outperform those led by men. According to her, women bring honesty, integrity, and a desire to do good work; they aim to accomplish more with the same resources and are less driven by greed or interest in commissions (I.7). Some men also acknowledged that women are capable of better planning and execution (I.12). In fact, several women shared that their voices are increasingly respected and prioritized in LGs (I.13; I.14):

In my experience, it used to be that way, it used to be that way - women's voices were not listened to, what women said was suppressed, it was not implemented anywhere. Now they [the decision makers] are like, women should have spoken- "Hey, Sisters, Mothers, you should speak a little, give us your voice, you should have told us something, you should have raised some questions!" I feel like that now, which is remarkable. That aspect is amazing, now. (I.14)

During an informal conversation, an engineer tasked with overseeing UCs commented, "It's easy to find data on women's participation nowadays because women are everywhere—you can just count the number of women in user committees and see how overwhelming their presence is (researcher's field diary)."

However, skepticism about women's capacity still persists. Despite successful examples, women are often doubted for their ability to lead infrastructure projects (I.8). A female ward member expressed that many women in UCs are there simply to meet quota requirements; they don't take active roles, leaving the bulk of the responsibility to the chairperson (I.9). Similarly, a woman who recently completed a project as chairperson of a UC shared her frustration, stating that many of the women she worked with lacked knowledge and were difficult to persuade (I.12).

Gender roles

Most respondents agreed that despite some progress and changes, society is still male-dominated or patriarchal. A local government officer (female) explained it well: "Every beginner in public participation needs support, but women need more support because our society is patriarchal (I.16)." Major decisions are still made by men, and critical responsibilities are rarely given to women.

The division of household chores is also gender-based. Some tasks are specifically allocated to women (I.1). Even working women, who are employed outside the home, have to take care of the kitchen after returning home (I.3). Within households, women are

expected to handle cooking, cleaning, and caring responsibilities—such as taking care of children, the elderly, or persons with disabilities. In some cases, husbands help or share these responsibilities, especially when women are busy, but the primary responsibility still rests on women (G.2). Some women believed that such a patriarchal mindset is strongly prevalent in Newar communities (I.4; I.8).

The public sphere is considered to belong to men, while domestic affairs are seen as the responsibility of women. Public affairs (such as community or government matters) are expected to be handled by men (I.10). Even within public spaces, such gendered divisions are visible. According to a female ward member, she looks after affairs related to women, children, senior citizens, and persons with disabilities, but is not involved in physical infrastructure and other development-related affairs. She is also not interested or assigned to such areas (I.4). The gendered division of work can be clearly seen in how one ward chairperson (male) divided responsibilities among his committee members:

I have divided responsibilities among the ward members as follows:

Ward member (male A): Youth and Sports

Ward member (male B): Disaster Management

Ward member (female A): Women's Affairs

Ward member (female B): Children's Affairs and Education.

(researcher's field diary)

A similar situation was observed in other wards visited by the researcher. In PGMs, too, women are mostly involved in income generation, skill development, and capacity-building trainings. Meanwhile, men are more active in UCs—temporary groups formed to manage local-level small-scale infrastructure projects. According to a ward chairperson, there are 25 to 30 small-scale local construction and maintenance projects planned for the ward in the current fiscal year. However, only two or three of these projects are being led by women through UCs. In one ward, the ward secretary provided the researcher with a file containing citizen applications submitted as part of the planning process. A review of these applications revealed that the majority were written and submitted by men (*researcher's field diary*).

According to another female ward member, women's participation in terms of numbers in public meetings is quite satisfactory. However, when it comes to execution and implementation, responsibilities are usually given to men. She believed that women are not behind in terms of learning, raising voices, and bringing agendas forward, but once those agendas move to the implementation phase, men dominate the process. Even in mixed-gender committees, it is usually the men who dominate:

I see women's participation in public gatherings as good. Women are not behind in terms of learning and understanding - as far as I can tell. Isn't it? Now, when it comes to execution, men are put forward. Isn't it? In gatherings and meetings, they [women] are strong enough to put their point across. When the same agenda or the same proposal is in the implementation phase, men are more dominant there. (I.8)

In a group discussion (G.3), members of a women's group shared that they had once been proposed to form a UC from their group, but they rejected the proposal because, although the committee would carry their names, the actual work would be done by men. A piece of conversation from the conversation is relevant to include here:

A: Well, they said they would give it to us once, the road over there. Then the men up there said, what did they say, they gave it to the men.

B: They said they would just keep our name.

A: They would keep our name, but we refused because they would do the work.

B: ... They would keep the name as a women's group, but they would do the work.

Observations also showed that most visitors to ward offices and the metropolitan city office were men—whether they came to receive services or to raise agendas, lobby, or advocate. Ward chairpersons were often seen surrounded by male visitors. The researcher observed that a significant portion of these visits were courtesy visits by men (researcher's field diary). Such visits help men stay close to local government officials and remain informed about ongoing issues and affairs.

In an informal conversation with local government officials, a ward secretary (male) remarked that, in most cases, "there is a hand of a man behind every active woman." He shared an example of a UC composed entirely of women, which on the surface appeared to be a powerful anecdote of women's empowerment. However, according to him, the initiative was promoted by an influential man in the community. He intentionally encouraged a particular woman to form the committee in order to avoid the potential conflicts or resistance that could arise from engaging himself, other men or more assertive or critical women. In this case, although the committee was made up of women, the influence and direction came from a man—suggesting that even behind seemingly independent women's initiatives, male influence often remains central (researcher's field diary).

5.3.2 Political system

The data reveals several important ways in which the political system influences public participation, particularly women's participation. First, some women pointed to the role of political change that occurred in 2015, when the new constitution was promulgated. The

new constitution changed the political system from unitary to federal, including structural reformation of LGs. For example, some interviewees shared that they had participated in planning meetings for annual development during the tenure of the previous local governments—prior to 2017. After the tenure of elected local officials ended in 2002, local elections did not take place for 15 years, until 2017. When local elections were finally held in 2017, they introduced a new federal structure of local governance. Women who had been involved in the participatory planning processes before 2017 recalled that planning meetings were conducted in a more systematic and organized manner at the ward and neighborhood levels. According to them, such structured meetings have largely been absent in the post-2017 period (I.3; I.7).

In contrast, although local governments today pay comparatively less attention to inclusive public-level planning meetings, women's formal stake in governance has increased due to the quota system (I.1). The current political system has significantly emphasized women's inclusion across various dimensions of governance. As a result, the representation and empowerment of women in local government structures have seen a notable improvement under the post-2017 federal framework:

And looking back at participatory programs, it seems like we've gotten a little better now, compared to before. When you look at the past and the present, the multi-party system is a little different now because there's a system that gives even a little responsibility, that says, "Do this," and that's it. We also feel like we've gotten the job done by feeling a sense of belonging, saying, "Let's do something." (I.14)

5.4 Summary of results

In summary, interviews with key informants (LG officials), women with and without experience of public participation, group discussion with ordinary citizen women, field observation, and a series of conversations with several people met during fieldwork helped explore a number of factors that are found to be influencing women's participation in PGMs currently in practice in LMC. The conversations revolved around three practices related to the annual development planning cycle in LMC— participatory planning (public meeting or citizens' applications), participatory implementation of projects (UCs), and participatory review (public hearing). Several factors that influence women's participation in these mechanisms emerged from the thematic analysis of data in text, i.e., transcripts. These factors are broadly classified into three categories (Table 1) for the sake of convenience in understanding.

Table 3 Summary of factors explored in the data

Individual Factors	External Factors	Structural Factors
• Time • Confidence • Capacity (Education, Knowledge and Skills, Income, and other) • Motivation • Exposure in Public Life • Social Networks	• Organizations (LG and its officials, Political parties, Women's groups, Neighborhood Development Associations, and Religious Institutions) • Support (Family, community, institutions, having someone to guide, and active women as role models) • Policies (Quota system, Women-targeted programs, Other gender Related policies, Cumbersome government procedures) • Access to information	• Culture, Belief System, and Gender Roles • Political System

Chapter VI: Discussion

This study was conducted in Lalitpur Metropolitan City of Nepal to explore factors that influence women's participation in PGMs of local governments. The research involved a number of key informant interviews, in-depth semi-structured interviews with ordinary women—both with and without experience of public participation—focus group discussions with women's groups, observations of local government offices, and a series of informal conversations with various individuals. The thematic analysis of qualitative data revealed a range of individual, external, and structural factors that influence women's participation.

6.1 Individual factors

Individual factors refer to elements within a woman's own control, abilities, and personal attributes that influence her participation in public life. While many studies have explored factors influencing citizen participation and women's empowerment, few have distinctly categorized these influences into individual, external, and structural levels. In this study, individual factors specifically denote those that shape a woman's capacity, confidence, and motivation from within. Among these, *direct individual factors* are those that immediately affect a woman's decision and ability to participate, while *indirect individual factors* are those that shape or moderate how these direct factors influence participation.

6.1.1 Direct individual factors

The data identified several individual-level factor that directly influence women's capacity and motivation to participate. For analytical clarity, these factors are grouped into two categories: *individual capacity factors*, which include time availability, income, education, and practical knowledge and skills; and *psychological factors*, which encompass self-motivation, confidence, a civic sense, and overall perception of meaning and value.

Individual capacity factors

A broad spectrum of literature on citizen participation and women's participation emphasized the analysis of participants' capacity as important for evaluating the meaningfulness and effectiveness of participation (Arnstein, 1969; Baum, 2015; Callahan, 2007). However, this study has focused on women's perceived capacity rather than the measurement of actual capacity. The result showed that *knowledge, skills, education, income, and time availability* determine a woman's capacity to participate.

Knowledge and skills influence women's participation level as they directly contribute to the capacity to participate. These attributes are generally developed through both education and experience. For effective participation, women need a diverse range of knowledge and skills—these include an understanding of local government processes and procedures, awareness of current affairs and social issues, as well as practical competencies such as leadership, management, public speaking, advocacy, lobbying, and teamwork.

Knowledge gives recognition and develops the value of a woman in a public setting. Women with a high level of knowledge were frequently approached for assistance in forming and operating UCs, managing women's groups, and addressing broader community issues. Conversely, women with limited knowledge were often underestimated or overlooked in public forums, regardless of their presence. Thus, a low level of knowledge and skills poses a significant barrier to meaningful participation, especially during the early stages of involvement..

Experience also emerged as a crucial source of knowledge. Women who did not participate, or who participated only moderately, often self-identified as having limited knowledge. In contrast, those who participated regularly tended to dominate public discussions and were widely recognized as more knowledgeable. These active participants—such as politically engaged women, leaders of women's groups, FCHVs, teachers, NGO/NPO workers, and local government staff—were commonly seen as legitimate and capable representatives in public forums. Because of their knowledge, they were often consulted by other women and entrusted with the responsibility of voicing collective concerns in public discussions. However, as participation increases, women gradually acquire experience, learn from their engagement, and begin to gain public recognition.

The data also suggest that **education** is one of the key factors influencing the level of women's participation. Civic engagement theory also suggests that education is one of the resources required for participation (Hoefer, 2021). Education equips women with knowledge, skills, income opportunities, and confidence. Education provides the necessary knowledge to understand issues and broadens perspectives. Formal academic qualifications earn the respect they receive in public meetings and PGMs. Uneducated or less-educated women are often underestimated or overlooked in public discussions and decision-making forums.

Lower levels of education are often associated with lower levels of awareness. Limited education also restricts women's ability to use social media and internet-based platforms, which are becoming increasingly important for civic engagement. The gap in education level between women working in a group creates problems due to differences in understanding and status.

Another significant finding relates to women's perceptions of *education and awareness*. Although education is generally believed to increase awareness, the data reveal a distinction between formal education and experiential awareness. Many participants emphasized that awareness—particularly awareness of one's rights and responsibilities as a citizen—comes more from *exposure and lived experience* than from formal schooling. This form of awareness appeared to be a stronger motivator for participation than academic qualifications, which is also noted by Stromquist (2015).

The important role played by education in women's empowerment and capacity development is appreciated across a wide array of literature. However, education does not directly lead to women's economic, social, and political empowerment due to the influence of *gender ideologies and structural barriers* within society. These factors create limitations that prevent a straightforward, positive correlation between education and empowerment (Jayaweera, 1997).

The findings highlight own **income** as a key factor in women's participation. Women with their own income gain more confidence, autonomy, and decision-making power than those who rely on family finances. Earning independently gives women a stronger sense of self-reliance and empowerment, enabling them to engage more actively in public life. Simply having access to money is not the same as having control over it.

Jagri et al. (2025) also explain that independent income strengthens women's economic empowerment by increasing financial control, autonomy, confidence, and social status. It encourages participation in both household and community life and helps build social networks. However, structural barriers often limit its full impact. This study also shows a similar empowering role of education, moderated by structural factors.

Finally, **time** was explored as one of the key determinants of a woman's decision or action to participate. Time is discussed as a key factor across the literature of citizen participation (Baum, 2015; Callahan, 2007; Speer, 2012). Civic engagement theory views time as a resource. Women must have time to participate, as meaningful engagement in participatory

mechanisms requires a dedicated time allocation. The most important factor determining a woman's available time for participation is her existing commitments—whether to household chores, employment, or business. Where and how she prioritizes her responsibilities directly affects how much time she can allocate to public engagement.

Household chores affect both homemakers and working women. Homemakers, especially free between 11 a.m. and 3 p.m., often participate in events. In contrast, women with regular jobs usually can't join due to time constraints. As a result, skilled and educated women are often missing from participatory spaces. Gautam et al. (2023) also found that while educated women are more aware and willing to participate, those in jobs or self-employment join less due to limited time.

Participation adds to women's *time pressure*, as they remain responsible for household chores like cooking, cleaning, and caregiving. Many rush through meetings to return home and manage duties, making participation an added burden. This aligns with Begum et al. (2024) who found that domestic work limits women's time for public life. Similarly, in Medellín, Colombia, Hajdarowicz (2022) noted that women viewed participation as another task, since all chores had to be done before stepping into public spaces. Rebalancing domestic labor is key to enabling participation. This is the point where women need family support.

When inexperienced women emphasized time as a barrier to participation, experienced women highlighted the importance of *time management*. This contrast indicates that time is not merely a fixed constraint but is closely related to one's experience level and motivation. As women gain more experience and become more motivated, they tend to find ways to manage their time more effectively to enable participation.

Finally, the analysis of individual capacity factors—such as education and income—reveals a complex interaction with the factor of time, resulting in what can be described as a **capacity paradox**. This aligns with what Goetz (2003) referred to as the *gender paradox*, wherein women who are more capable in terms of education, income, and skills often lack the time to participate in governance processes. Higher levels of education and income tend to enhance knowledge, confidence, and leadership skills, yet these same women are frequently engaged in regular employment or self-employment, which limits their availability for community-level participation. Consequently, it is often homemakers—

those with relatively lower access to education and income—who are more available to engage in participatory mechanisms.

Psychological factors

In literature, **confidence** is analysed as psychological empowerment (Mandal, 2013). Social cognitive theory (SCT) stresses the role of self-efficacy—an individual's belief in their ability to accomplish tasks or achieve specific goals—in determining one's actions. According to Schunk (2012) self-efficacy stems from one's experiences of success, observation of others' success, encouragement of others, and positive emotions.

Women often hesitate to participate, speak in public discussions, or assert their views, even when they do speak. This hesitation discourages potential participants from taking advantage of available opportunities. The perception among women that they lack knowledge, skills, and experience emerges as the most significant cause of low confidence. Confidence is also influenced by income, family background, and personal life history. However, comparing women of similar financial and educational backgrounds—with and without participatory experience—reveals that experience is directly associated with higher confidence.

While confidence is the trust a woman has in her own abilities, **motivation** is the driving force that gives her a reason to participate. These two are closely linked and often reinforce each other. However, most literature treats confidence and motivation as separate factors; this study also supports their distinct roles in influencing participation.

The data suggested that motivation is positively associated with participation level as also noted by Speer (2012). A sense of responsibility, civic consciousness, or the desire for social recognition enhances motivation to participate. In contrast, family obligations—often internalized through culturally ingrained gender roles from early childhood—tend to diminish women's motivation to engage in public life. Similarly, perception of meaninglessness, negative public reaction, workload, and stress reduce the motivation level. However, the external and structural factors, such as the support system, public attitude, cultural norms, etc., shape motivation and confidence to a high extent.

Women's perceptions of the value, relevance, and effectiveness of participatory mechanisms are crucial elements. Their willingness to engage increases when they view these mechanisms as meaningful, necessary, and capable of yielding tangible results. They assess the relative importance of each event; if an activity is perceived as less important

than other daily responsibilities, it is likely to be deprioritized. Similarly, when the issue resonates personally—such as the involvement of FCHVs) in constructing a local health post, or women participating in the building of a bridge essential for fetching water—participation tends to increase. Hence, a major deterrent to participation is the perception of meaninglessness. If women feel that their voices are not genuinely heard, that meetings are symbolic, or that decisions are predetermined, their motivation to engage declines.

The ‘meaningfulness’ of participation of hitherto excluded groups such as women, Dalits, and the poor is questioned in the citizen participation literature of Nepal. Acharya & Zafarullah (2022) noted that community-level planning meetings are inclusive, but the decision-makers (mainly mayors) don't appreciate such meetings. Bhusal (2023) also mentioned that modern-day participatory forums focus on the attendance of people rather than meaningful participation. Women, Dalits, and minorities' participation is a positive outcome, but their influence on decision-making is questionable. Such participation without effect and meaning—ritual participation or unequal influence among participants— may reduce motivation to participate, thus women lose interest in participating and choose not to participate (Kaur & Jairath, 2015).

Additionally, public criticism, heavy workloads, and emotional stress can negatively affect motivation. Highly active women cited bureaucratic hurdles, interpersonal conflicts, and the emotional labor of community engagement as sources of burnout. Managing diverse viewpoints, navigating resistance, and shouldering public responsibilities can become overwhelming, leading some women to withdraw. These factors act as negative reinforcement or punishment for participation as per the social cognitive theory.

Ultimately, while motivation may appear as an internal attribute, it is deeply shaped by social structures, family dynamics, and perceptions of value. Motivation in social cognitive theory is not just about internal desires—it is shaped by external feedback, social interactions, and learned experiences (Schunk, 2012; Schunk & DiBenedetto, 2023). It is influenced by individual traits such as personality, education, family background, and social awareness. A woman's decision to participate—or refrain—is rarely isolated from these broader influences. Moreover, women's motivation to engage in participatory governance is driven by how they perceive and evaluate the meaning, utility, and relevance of such mechanisms. These perceptions are not static but evolve through social interaction, lived experience, and contextual change.

6.1.2 Indirect individual factors

Indirect individual factors are personal traits that influence women's participation by shaping how direct factors like capacity, confidence, and motivation function. This study identified public exposure, social networks, age, motherhood, and occupation as key examples. Though not directly driving participation, they affect how women manage time, build confidence, and stay motivated—acting as important moderators in the participation process.

Exposure in public life

In this study, **exposure** refers to a woman's initial experience or encounter with public participation. It is defined as the preliminary connection to opportunities—either self-initiated or facilitated by others—that allow women to engage in public life. Exposure marks the first entry into participatory mechanisms and public spaces, which have traditionally been shaped by gender norms limiting women's involvement. It represents a crucial breakthrough moment, enabling women to cross the boundary between domestic roles and public engagement. Simply put, exposure is a woman's *first-time experience of participating in public affairs*.

Exposure serves as the critical “ice-breaker,” challenging the entrenched notion that *“public life belongs exclusively to men.”* Data suggest a clear progression: greater exposure leads to more experience, which enhances knowledge, skills, confidence, motivation, social network, access to information, and overall capacity of a woman..

Initial participation—like attending meetings or joining committees—is a form of exposure that, when repeated, builds experience, knowledge, and skills. Studies worldwide show that active engagement improves competency. For example, in two Dutch cities, citizens gained civic skills and deeper responsibility through public policy involvement (Michels & de Graaf, 2010). For women, this growing experience leads to more confident and meaningful participation. Exposure is thus a transformative process that strengthens long-term engagement.

The importance of a woman's first participation experience can be explained by Albert Bandura's social cognitive theory. According to Schunk & DiBenedetto (2023) during this first experience, women learn skills by observing others (observational learning). If the experience is positive and their efforts are appreciated or rewarded, their confidence (self-efficacy) and motivation to participate again increase (social reinforcement). Participation

levels are then shaped by the interaction of personal beliefs, behavior, and social environment—a process called *reciprocal determinism*. The more positive this interaction, the higher the participation.

A study by Gautam et al. (2023) in western Nepal shows how exposure to public life builds women's capacity. When men migrated for work, women had to step in to represent their families in community forest management. Though initially a duty, women saw this as a chance to gain decision-making power, learn new skills, and feel empowered. The absence of men pushed women into public roles, and as they participated more, they became more confident, motivated, and skilled in negotiation and decision-making.

Social networks

A **social network** can be understood as the web of relationships a woman maintains with individuals and institutions in her community. According to social capital theory, social networks provide a woman access to information and opportunities, emotional and social support, increased visibility and influence, reciprocity and mutual aid, confidence and skill development, and ultimately empowerment (Lowndes, 2004). Social capital refers to the number of associations, ties between people, level of trust, and reciprocity, which ultimately determine the level of motivation and capacity of citizens (Speer, 2012). The result suggests a strong association between robust social networks and higher levels of women's participation.

Social networks boost a woman's credibility in her community. When key local actors recognize her, her opinions carry more influence and are more respected. This leads to greater opportunities to participate meaningfully in decisions. Their frequent involvement reflects their strong community ties and social legitimacy, not favoritism. Women frequently involved in participatory governance usually have strong reputations and networks that support their inclusion. This creates a cycle where participation builds recognition, which in turn strengthens their role as active public figures.

Social network size depends on the level of **social interaction**, which is influenced by a woman's occupation, business activities, community involvement, and personal interests. Some jobs naturally involve more social interaction than others. Additionally, a woman's personality and preferences also affect how much she engages socially. Participation in institutional spaces like women's groups, UCs, and NDAs helps women build social

networks. Women's groups create strong peer connections and support, while UCs and NDAs offer wider networking, including with men.

Age influences women's participation by bringing experience, maturity, and social respect. Middle-aged women (around 40) often participate more, as their children are grown and household burdens lessen. Older women (60+) also have time but may lack the skills for active engagement. Younger women are usually busy with studies, jobs, or migrating for opportunities, limiting their involvement.

Motherhood impacts participation depending on children's ages. Mothers of young children face heavy caregiving duties, leaving little time for public engagement, while mothers of school-age children often find more free time to participate. Young working mothers prioritize their limited free time for their children, sometimes sending husbands to represent the family in meetings.

Occupation affects time and social interaction levels. FCHVs, with frequent community contact, are highly active in participation. Homemakers, self-employed women, or those in family businesses have flexible schedules, enabling more involvement. Full-time employed women struggle with time due to fixed work hours, commuting, and household duties, often leading to isolation from participation networks. Business owners risk financial loss when attending meetings, but motivated women see participation as rewarding beyond money.

In summary, this study identified several individual-level factors influencing women's participation. Time, education, knowledge, skills, and income were found to determine a woman's capacity, while confidence, perception of meaningfulness, and self-motivation were key psychological factors. Additionally, exposure to public life, social networks, age, occupation, and motherhood were identified as moderators that influence how these direct individual factors affect participation levels. The relationships among these factors are complex—sometimes mutually reinforcing, other times paradoxical—forming an intricate web of individual influences. Although individual-level factors are conceptualized as those within a woman's control, in reality, they are continuously shaped by her social environment and, conversely, also contribute to shaping that environment. This dynamic interaction aligns with the social cognitive theory, emphasizing the reciprocal relationship between individuals and their social context (Schunk, 2012; Schunk & DiBenedetto, 2023).

6.2 External factors

In this study, factors beyond a woman's personal control are divided into *external and structural variables* for clearer analysis. Unlike broad, persistent structural factors, external factors are more immediate influences outside the individual, such as family and community support, institutional and policy support, mentorship, role models, access to information, and physical proximity to government offices. These external elements significantly shape a woman's capacity, confidence, and motivation to participate in governance.

6.2.1 Support system

The analysis shows that women often need external support to overcome personal barriers to participation. Social Cognitive Theory highlights how external reinforcements shape behavior (Schunk & DiBenedetto, 2023), while Civic Engagement Theory stresses the role of resources and psychological support (Hoefer, 2021). This study finds that due to women's limited capacity, motivation, networks, and opportunities, targeted external support is crucial to narrowing the gender gap in participatory governance. Without such support, gender parity in public engagement remains unlikely.

Family support

Family support emerged as one of the most decisive factors influencing women's ability and willingness to engage in local governance. Women consistently highlighted trust, encouragement, emotional acceptance, and equitable sharing of household duties as critical to their participation. When such support is present, other barriers—whether institutional, cultural, or structural—tend to matter less for women.

Two key forms of family support enable participation. First, practical support—like sharing domestic work—frees up time and energy. Second, emotional support—such as trust and encouragement—boosts confidence and motivation. The source of this support varies by life stage: for married women, husbands are most influential; for unmarried women, it is parents or guardians; and for senior women, adult children.

Family attitudes toward women's public engagement also shape participation. If such involvement is seen as neglecting domestic duties, women may face resistance. In these cases, verbal support alone is not enough; practical help and resources (e.g., for transport or childcare) are essential for participation to be feasible.

Family structure further affects participation. In joint families, while domestic work is heavier, tasks can be shared—e.g., with mothers-in-law or adult men. In nuclear families, fewer people are available to share responsibilities, so women often shoulder the full burden unless caregiving is shared equally between spouses. A study by Gautam et al. (2023) in Western Nepal also found higher participation among women in joint families, especially where mothers-in-law or adult men were present to assist with chores or childcare. Women with small children were less able to engage.

Family background—especially education and socio-economic status—also matters. Educated families tend to be more supportive of women’s public roles. Financial stability allows women access to transport, communication tools, and appropriate attire. In contrast, women in low-income households may prioritize survival or income generation over civic participation.

The importance of family support is widely echoed in the literature. Hajdarowicz (2022) found family encouragement, shared domestic duties, and protection—especially from husbands or partners—to be essential for women’s participation in a violent urban context in Colombia. The United Nations (2021) also stresses the need for family support, flexible scheduling, and care services to help women balance public and family life.

Support from the community

Community attitudes and behaviors significantly influence women’s participation in public life. The community can either reinforce traditional gender norms or support their transformation. Encouragement, recognition, and informal mentorship build confidence, while mockery, gossip, and gendered stereotypes discourage involvement and reinforce male-dominated spaces.

Community support is more about social atmosphere than direct help. It’s less about active facilitation and more about the absence of obstruction. As one respondent noted, it’s not how much support you receive, but how little criticism you face. A lack of judgment itself can create space for participation.

Subtle social criticisms act as cues that reinforce traditional roles, often causing self-censorship. This discourages women—especially newcomers—from participating. While some women withstand community pressure, others, particularly those with less experience or weaker support systems, are more deeply affected by negative social environments.

Guidance and Role models

Data indicates that access to guidance—someone to help navigate public engagement—is a key factor in supporting women's participation. This guide may be a family member, colleague, community member, or even an institution offering collective mentorship. Sometimes, guidance comes from multiple sources rather than a single individual. Guidance typically includes sharing the unwritten norms of public life, teaching relevant skills, offering emotional support, building confidence, and providing counsel during challenges. This support acts as both a psychological cushion and a practical resource for women entering male-dominated spaces.

Notably, in many cases, the guiding figure is a man—someone with experience in political life. This reflects a gendered imbalance in authority and mentorship, highlighting the limited availability of experienced female mentors. While male allies can be crucial, their dominance in mentorship roles underscores the need to cultivate more women mentors and institutionalize women-focused support systems. However, the current male-centered structure of support may limit the long-term empowerment of women, emphasizing the need for more gender-equitable guidance systems.

Women already active in politics or community initiatives often serve as **role models**, encouraging others to overcome hesitation and join public life. These role models, especially women in leadership, help others gain early-stage exposure through encouragement and mentoring. Social Cognitive Theory also affirms the value of role models in building self-efficacy and motivation. When women see relatable figures succeed, they are more likely to believe in their own potential and engage in public life.

6.2.2 Institutional and policy arrangements

In LMC, several key institutions influence women's participation in participatory governance. These include LGs and elected officials, political parties, NDAs, women's groups, and religious institutions like the Guthi. Similarly, a range of national, provincial, and local policies are in effect—some explicitly aimed at enhancing women's participation in governance, while others are designed to promote broader goals of women's empowerment.

Local government and officials

LGs initiate participatory governance by creating platforms for engagement. **Elected officials**, particularly *ward chairpersons*, oversee public meetings and UC formation, often

delegating tasks to other ward members. **Female ward members** play a crucial role as advocates for women, ensuring their voices are represented in decision-making and addressing gender-specific issues.

Non-elected officials contribute to these processes, but elected officials, especially chairpersons and female ward members, are key in promoting women's participation through information sharing and inclusive attitudes. Data suggests informal relationships with officials enhance women's social networks and access to information, fostering greater involvement. As institutions, LGs empower women through capacity-building workshops, inclusive policies, and participatory forums, strengthening women's role in governance

Women's groups

According to Díaz-Martin et al. (2023) women's groups serve as vital platforms for interaction, networking, and pursuing shared goals. They also provide development organizations with an efficient way to reach and serve large numbers of women. In the context of LMC, initially promoted by LGs for savings, income generation, and capacity-building, these groups evolved into influential actors in local governance by fostering women's empowerment and participation.

Over time, numerous groups formed across wards, later coordinating into broader networks at the ward and municipal levels. This shift from scattered units to organized networks strengthened their influence and visibility. With extensive membership and sustained capacity-building, women's groups are now recognized as legitimate voices in participatory governance. Ward officials regularly invite group leaders to public meetings, valuing their ability to articulate collective concerns. Compared to individual voices, these groups are seen as more coherent and impactful, helping translate women's priorities into development proposals, project oversight, and policy advocacy. Women's groups also hold political significance. Their size and reach make them influential voting blocs, drawing the attention of political actors, especially during elections.

However, reliance on women-only platforms raises concerns. While they empower women in supportive spaces, they may inadvertently restrict women's presence in mixed-gender forums NDAs and UCs, where real power often resides. Despite mandates for female representation, leadership in these forums remains male-dominated, with women often serving symbolic roles.

Neighborhood Development Associations (NDAs)

NDAs are influential stakeholders in local governance and serve as important platforms for citizen participation in decision-making and development processes. However, the leadership structure within NDAs rarely includes women in key positions. Although federal policy mandates the inclusion of women—typically in roles such as secretary or treasurer—these positions often carry limited influence and authority, reducing their effectiveness. Unlike UCs, which operate under fixed gender quotas, NDAs have no such provisions for ensuring women's representation in general membership or leadership roles. As a result, women's participation is often symbolic or incidental, driven more by broader trends in gender inclusion than by institutional commitment. Moreover, NDAs tend to replicate prevailing gender norms and stereotypes within their structures and practices, often relegating women to subordinate or supportive roles. This institutional culture significantly constrains women's agency and limits their potential to engage meaningfully in local governance through NDAs.

Affirmative actions

The analysis of affirmative action—particularly gender quotas—reveals a generally positive influence on women's participation in PGMs. As Agarwal (2010) notes, ensuring a critical mass of women through quotas enhances the representation of women's voices in governance. These measures provide women with initial exposure, which in turn helps develop social networks, build experience, and foster psychological self-efficacy—all of which are crucial for meaningful engagement.

While the positive outcomes of affirmative action are widely acknowledged in the literature, this study, alongside a few others (Acharya & Zafarullah, 2022), raises questions about the depth and meaningfulness of participation ensured through quotas. Key concerns emerge: Are women elected or nominated through affirmative action mechanisms genuinely capable of influencing decision-making processes on par with their male counterparts? Or do they remain constrained by deep-rooted gender norms, which continue to shape dynamics even within formal institutions?

The findings of this study reflect a dual reality. On one hand, affirmative action has empowered many women by offering them opportunities to engage, gain experience, build confidence, and participate repeatedly. On the other hand, pervasive gender norms, which previously operated within families and communities, often reassert themselves within participatory spaces, limiting women's influence and reinforcing traditional roles. Although

this study touches upon both aspects, a more in-depth and focused analysis is necessary to fully understand the long-term implications and limitations of affirmative action in PGMs.

Target group budgeting

Target group budgeting refers to the allocation of a specific percentage of the annual LG budget to programs and activities designed to empower marginalized and historically excluded groups, including women. These initiatives typically include income-generating activities, skill development training, and awareness-raising workshops. While not always directly linked to PGMs, such budgeting strategies indirectly enhance women's participation by strengthening their individual capacity, expanding social networks, and providing exposure to public life. In doing so, target group budgeting serves as a strategic tool for empowerment and inclusion, laying the groundwork for more meaningful and sustained engagement of women in local governance processes.

Cumbersome documentation and bureaucratic procedure

While women's attendance in public meetings is generally satisfactory, their involvement in more intensive participatory processes—like annual planning or user groups for small-scale infrastructure—remains limited compared to men. A key reason is the procedural complexity and bureaucratic burden of user group participation. Tasks such as securing approvals, managing contracts, and preparing reports are time-consuming and technically demanding. For many women, particularly those lacking experience, confidence, or support, these requirements act as significant deterrents. Without strong motivation or guidance, the hurdles to active engagement—especially in leadership roles—are too high. Cumbersome procedures and financial risks discourage many women from assuming UC responsibilities.

6.2.3 Information and physical proximity

Access to information is a fundamental human right, crucial for women to exercise their civil, political, social, and economic rights. It strengthens government transparency and accountability, and empowers women to make informed decisions, defend their rights, and actively participate in public life (Neuman, 2022).

This study highlights that access to information—and how it is shared—is a key factor influencing women's participation in local governance. In LG's planning, citizens are generally invited through public notices to submit proposals or attend public hearings. Data shows that personal, *face-to-face invitations* are far more effective than general public notices in encouraging women's engagement. Women are more responsive to direct

requests, often viewing them as difficult to decline, which increases their attendance at meetings and forums. This reflects the strong role of informal social networks in shaping women's involvement in participatory processes. When communication relies solely on public announcements, male household members are more likely to respond, revealing a *gendered barrier in information access*.

The success of information dissemination depends heavily on the attitudes and efforts of local government officials. Female ward members are especially vital in this process, with many women viewing them as their primary link to the LG. Their proactive communication fosters a more inclusive and informed environment, directly shaping women's ability to access opportunities and participate meaningfully in local governance. Furthermore, they serve as important intermediaries, informing women directly and encouraging participation, thus bridging this gap. Similarly, women's groups, often linked to female ward members, are key to information flow. They receive updates via meetings, calls, or social media, which group leaders pass along.

While a study in the Philippines (Caparas & Agrawal, 2016) questioned the influence of social norms on participation, this research found that informal networks and personal outreach strongly influence women's engagement. Regular visits to LG offices also increase women's access to information and foster relationships with officials, helping them stay informed and involved. However, this also creates information asymmetry—active women remain well-informed, while others are left out.

In addition, social media has emerged as a supplementary communication channel. Ward offices maintain pages where updates are posted, enabling digitally literate women to stay informed remotely. However, its reach is limited—few women follow official pages, and interpersonal communication remains more effective, especially for those not already engaged.

Another significant factor is **physical proximity** to local government institutions. Women who reside near ward offices or municipal units are typically more informed and involved in local governance activities. Many of the active women interviewed lived in close proximity to ward offices and could readily attend meetings and respond to invitations from local officials. *Conversely, women who lived farther away frequently cited distance, time, and transportation costs as key barriers to participation.* This was especially relevant in cases where attendance at multiple meetings was required—such as during the formation

of UCs or in fulfilling documentation procedures at the ward office. Public hearings and major planning meetings are also typically conducted at centralized municipal or ward offices, which compounds the logistical challenges for women living at a distance. The data thus validates women's concerns about travel-related constraints and highlights the *spatial dimension of exclusion* from participatory governance.

In summary, the study identified several external factors influencing women's participation, including institutional and policy arrangements, family and community support, guidance and role models, access to information, and physical proximity. These factors shape both individual and structural conditions for participation and often moderate their effects. They were found to influence how individual factors translate into participation and how structural factors affect individuals. The analysis revealed a complex web of interrelated influences—some reinforcing, others conflicting. Further analysis of structural variables will deepen understanding of women's participation.

6.3 Structural factors

Structural factors are the socially, economically, and politically fundamental, long-lasting, entrenched elements that define a society. These include enduring social constructs and identities like class, gender, ethnicity, and sexuality, which can persist for hundreds of years (Tam & Domingo, 2015). Such factors are named contextual factors in a study by Ianniello et al. (2019). Contextual factors are “pre-existing conditions within which citizen participation is expected to take place (p.26).” The data in this study revealed the direct relationship between several individual factors that determine women's capacity for participation, as well as the structural factors such as gender role, belief system, and political system, shaping and moderating the influence of individual and external factors on the participation level of women.

6.3.1 Culture

The data shows that cultural factors—especially **belief systems, gender roles, and ethnicity**—play a significant role in shaping women's participation in public life. At the core is a deeply rooted patriarchal mindset, internalized by both men and women, which undermines women's credibility as leaders. As Jayaweera (1997) notes, public perception often doubts women's leadership capacity, even among women themselves. Consequently, women who aspire to lead frequently face *criticism, stigma, and discouragement*. In Nepali context, various women's movements have a long history of more than 100 years, several constitutional, legal, and institutional reforms have weakened the patriarchal system, but it

is still systemically prevalent across “political, economic, social, and cultural systems, and it encompasses multiple, intersecting axes of discrimination in addition to gender (Upreti et al., 2020, P.88)”.

This *patriarchal ideology* is reinforced by rigid **gender roles**, instilled from early childhood and passed across generations. These roles assign public responsibilities to men and domestic duties to women—like cooking, caregiving, and cleaning—limiting women's participation in governance to low-budget, skill-based programs, while men handle infrastructure projects and decision-making roles. The burden of domestic work, combined with a lack of shared household responsibilities, further restricts women's *time and capacity* for civic involvement.

Begum et al. (2024) highlight how gendered divisions frame women's roles as family-centered rather than community-focused. Mohanty (2015) explains that dominant groups, such as men, often maintain control not through open conflict but via subtle strategies like manipulation or conciliation, limiting women's effective engagement.

This division between public and domestic spheres doesn't just assign duties—it shapes women's *awareness and motivation*. Many women avoid participatory spaces, believing public affairs are men's responsibility. A recurring sentiment was: “The men are handling it well—why should we worry?” As long as male relatives manage public tasks, women often feel no urgency to engage.

Crucially, these gender roles are not only externally enforced but also internally accepted. Many women believe public spaces are not their domain, leading to self-limiting attitudes and a lack of *support* from men, who are culturally positioned as gatekeepers of authority. Women respond to this imbalance by either deferring to men—reinforcing patriarchal norms—or by organizing collectively to assert their voice.

While skepticism toward women's leadership persists, *not all cultural beliefs are negative*. Women are often viewed as more honest, responsible, and accountable than men—reflected in their frequent appointment as treasurers in participatory structures. Though much of this perception comes from female respondents, informant narratives also suggest that women generally fulfill their public duties with integrity. However, cases where women lead men in public decision-making without a dominant male figure are still rare. This highlights the persistent challenge of shifting gendered power dynamics, even within frameworks designed to promote participation.

Upreti et al. (2020) note, in Nepal, gender and patriarchy intersect with caste, ethnicity, and religion, shaping participation and reinforcing exclusion in complex ways. **Ethnicity** intersects with gender norms in significant ways. The study found that Newar communities in the research area were generally more conservative than non-Newar or mixed communities, with stricter gender roles and patriarchal attitudes. This contributed to lower confidence and public participation among Newar women.

Language further complicates this dynamic. Public forums are usually conducted in Nepali, which is not the mother tongue of Newar women. Though many can speak Nepali, their distinct accent can invite ridicule, discouraging participation. While language barriers are not gender-specific, they affect women more due to *historically limited public exposure*. As a result, Newar men are often more fluent and confident than women in these settings. However, *cultural shifts are visible across generations*. Younger Newar women, with better access to education, media, and social networks, show greater confidence and fluency in Nepali than older women—indicating slow but positive change toward inclusion.

6.3.2 Political system

The 2015 Constitution of Nepal brought significant political transformation that shaped women's participation in PGMs within LGs, with mixed effects. On one hand, the institutionalization of elected local bodies *reduced opportunities for direct citizen engagement* in annual planning and budgeting. Elected representatives, legitimized by popular vote, often viewed public consultations as redundant, diminishing spaces for citizen input—particularly for women.

Bhusal & Acharya (2024) note that while local officials acknowledge participation and inclusion rhetorically, their actual responsiveness remains limited. Unlike the appointed bureaucrats who governed during the 15-year electoral gap, elected representatives have not strengthened participatory structures. No local governments in their study introduced innovative practices to deepen citizen engagement, relying instead on centrally issued guidelines. Although numerical participation in forums is satisfactory, its real influence on decisions remains minimal—reflecting a broader prioritization of representative over participatory democracy. In addition, Bhusal (2023) puts it, representative and participatory democracy often exist in tension, with elected leaders underestimating the value of direct engagement. Similarly, Pálsdóttir et al. (2023) found in Iceland that decision-makers favor existing electoral channels over deliberative participation.

On the other hand, the same reforms significantly *advanced women's political and economic empowerment*. Gender equality provisions—including a mandatory 33% female representation in UCs and reserved seats in governance structures—have institutionalized women's roles in public life. These changes challenged long-standing patriarchal norms and boosted women's visibility, confidence, and leadership capacity. Tam & Domingo (2015) also emphasize that mechanisms like quotas and women's caucuses are valuable, but their effectiveness depends on broader political systems, including electoral rules, party dynamics, and political culture.

As a result, the post-2015 governance framework is widely seen as more supportive of women's participation than past arrangements. The inclusion of women in decision-making forums has not only legitimized their presence but also helped *reshape traditional gender dynamics*. While the decline in broad citizen engagement is concerning, the formal inclusion of women through targeted policies is a key gain.

In summary, structural factors such as gender stereotypes and patriarchal mindsets create an uneven playing field for women. Gender inequality in participation was also found to be influenced by ethnicity—primarily due to language barriers and cultural norms embedded within specific ethnic communities. However, the political system interacts with these social norms in complex ways: in some instances, it helps minimize gender inequality through institutional mechanisms and policies. Yet, the political system is not entirely separate from prevailing social norms; rather, these norms are embedded within political institutions as well, thereby reinforcing gendered power relations.

6.4 Summary of discussion

Women's participation in PGMs is shaped by a multitude of interrelated variables. This study examined a selection of these factors, categorizing them into three analytical levels: individual, external, and structural (Figure 2). While this framework facilitated a more organized analysis, the relationships among variables were found to be highly complex and nonlinear. Some factors reinforced others, while in certain cases, they appeared to diminish each other's influence. Interactions between variables also gave rise to new phenomena—for example, the interplay between support systems and psychological factors resulted in what can be termed as 'pushed participation.' Similarly, the combination of education, income, skills, and time constraints revealed a 'capacity paradox,' where having more resources did not necessarily translate into greater participation. These intricate relationships underscore the presence of emergent and sometimes paradoxical patterns.

Moreover, each identified factor is itself influenced by a set of confounding variables, many of which lie beyond the scope of this study. These findings highlight the inherent complexity of causation and interaction in social science research, suggesting the need for cautious interpretation and deeper exploration in future studies.

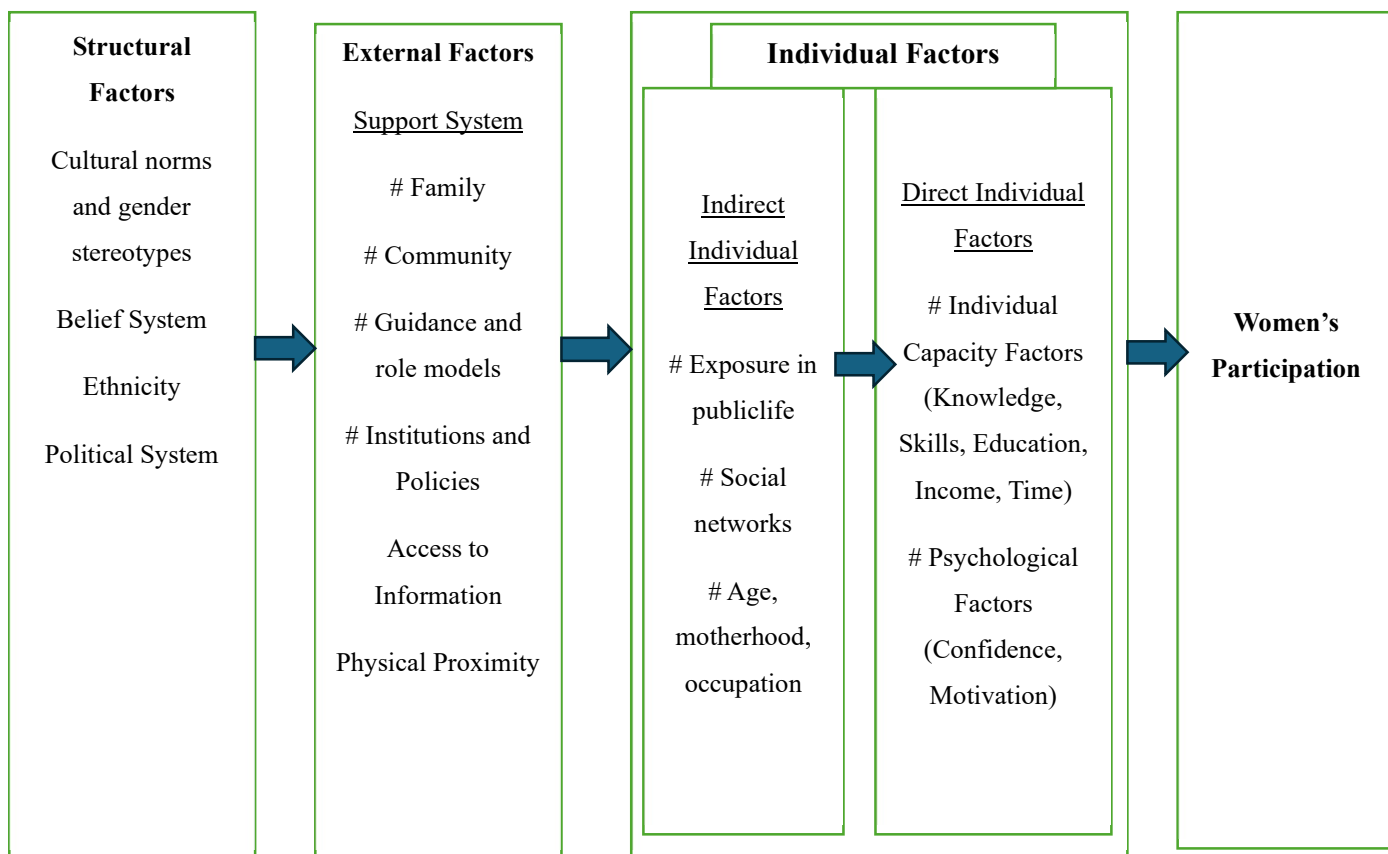


Figure 2 Factors influencing women's participation in participatory governance mechanisms in a LG of Nepal

Chapter VII: Conclusion and Recommendation

7.1 Conclusion

This study aimed to explore the factors influencing women's participation in PGMs designed to promote citizen engagement in local governance and to offer policy recommendations for enhancing such participation. Conducted in Lalitpur Metropolitan City, Nepal, the research was guided by the central question: **What are the factors that influence women's participation in local-level participatory governance mechanisms in Nepal?** A conceptual framework was developed following an extensive review of the literature, and a qualitative research design was employed. Data were collected through in-depth interviews, group discussions, observations, and informal conversations, and analyzed using thematic analysis.

The findings revealed a multitude of factors influencing women's participation, which were categorized into three levels—individual, external, and structural—based on the degree of control women have over these factors, their contextual characteristics, and their changeability.

At the individual level, two subcategories were identified:

Individual capacity factors: education, knowledge, skills, income, and time—which directly shape a woman's ability to participate.

Psychological factors: confidence, self-motivation, civic sense, and perception of the value of participation—which influence self-efficacy and psychological engagement, as explained by Social Cognitive Theory and Civic Engagement models.

These direct individual factors are moderated by **indirect individual factors** such as exposure to public life, social networks, age, occupation, and motherhood—factors that shape, but do not immediately determine, participation.

External factors include support systems within the family and community, institutional support, guidance and role models, access to information, and geographical proximity to the LG's office. **Structural factors** encompass broader systemic elements such as cultural norms, belief systems, gender stereotypes, ethnic traditions, and the political system. These are universal in nature and persistent across different contexts, even though their impact may vary locally.

Beyond these general categories, the study identified four critical insights that require particular attention due to their significant implications for women's participation:

The Capacity Paradox: This paradox describes a situation in which capable women—those with higher education, skills, and income—are less likely to participate due to competing professional or domestic commitments, primarily time constraints. In contrast, homemakers, though often less formally educated, have more flexible daytime availability and thus tend to participate more frequently in community events. Ironically, this provides homemakers with opportunities to gain experience and confidence, while more capable women are left out due to their other engagements. This paradox underscores the need to carefully consider when and how participatory events are organized, and which groups are unintentionally excluded.

The Virtuous Cycle of Participation: Consequently, a limited number of women end up repeatedly occupying roles in local governance, leading to what can be described as the "capture" of participatory spaces by a small group. This phenomenon reflects broader patterns of virtuous and vicious cycles of participation. Women who possess the necessary capacities, time, motivation, access to information and support systems, physical proximity to local government offices, strong social networks, or informal ties with officials are more likely to participate—and to continue participating (Figure 3). In contrast, women who lack these enabling conditions are often excluded and remain distant from participatory processes, perpetuating cycles of non-participation.

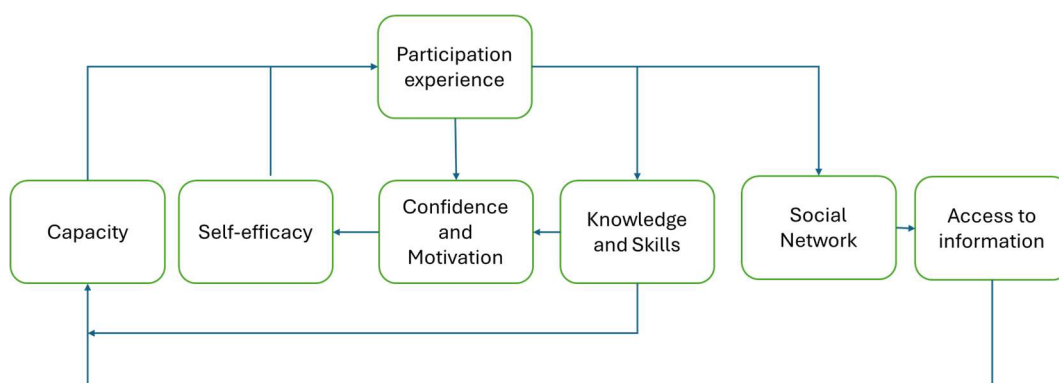


Figure 3 A virtuous cycle of participation

Exposure as a Transformative Trigger: Exposure—defined as a woman's first or early experience in public participation—is a powerful catalyst. It acts as an "icebreaker" that brings women from the *vicious cycle of non-participation* into the *virtuous cycle of participation*. Grounded in Social Cognitive Theory, exposure enables observational

learning. Positive reinforcement—such as feeling heard, respected, or valued—encourages future participation. Conversely, negative reinforcement—such as criticism, humiliation, or marginalization—deters future involvement. This study emphasizes that exposure is not merely about attendance; it is a foundational experience that shapes women's attitudes and trajectories in participatory governance. Thus, creating supportive, respectful, and inclusive exposure opportunities is crucial.

Moreover, **neighborhood-level planning meetings**, being informal and locally held, emerge as the most accessible entry point for women. These meetings mitigate logistical barriers such as time, cost, distance, and lack of formal invitations, and offer a favorable environment for exposure. Strengthening these mechanisms in a women-friendly way can significantly enhance participation.

Promoted Participation and Breaking Self-Exclusion: Promoted participation refers to participation initiated through external encouragement rather than intrinsic motivation. Often, women self-exclude from participation due to internalized gender norms that define the public sphere as male-dominated. This self-exclusion, while appearing voluntary, is shaped by deeply rooted cultural and structural barriers. Policies such as affirmative action, family encouragement, and institutional outreach can "push" women into participation. While such externally motivated participation may lack initial self-efficacy, it often becomes transformative over time—leading to empowerment, confidence, and future engagement. This dynamic interaction between structural, external, and individual factors reveals the need for sustained encouragement and follow-up support for first-time participants. The data clearly indicates that women's participation is largely 'promoted' rather than self-initiated. This promoted participation helps break self-exclusion, address the capacity paradox, and shift women from a cycle of non-participation to active engagement (Figure 3).

In summary, a careful examination of the interactions among individual, external, and structural variables led to the identification of four critical phenomena that are essential for understanding women's participation. While structural variables are deeply embedded and resistant to immediate change, external factors—particularly those shaped by policies—can gradually influence them. Given that women continue to lag behind men in both individual capacity and psychological readiness, there is a compelling need to establish robust support systems specifically tailored to women. These support systems should also address the broader environment, which remains less conducive to women's participation

due to enduring structural barriers. To be effective, such systems must strategically account for the critical phenomena identified in this study, including capacity paradox, exposure, and promoted participation, in order to enhance women's engagement in local participatory governance mechanisms.

7.2 Recommendations

7.2.1 Policy recommendations

The analysis of factors influencing women's participation in participatory governance arrangements within Nepal's local governments—specifically LMC—pointed to several ‘rooms for improvement’ at the individual, external, and structural levels. Based on the analysis of factors, the following policy recommendations are proposed to enhance women's participation in PGMs:

Capacity Development

- i. Given the perceived inadequacy of formal education in public participation, a) integrate both theoretical and practical knowledge of citizen participation into school curricula to enhance civic awareness from an early age, b) orient target group budgeting into trainings, workshops, and simulations that develop women's knowledge and skills of public participation.
- ii. LGs should expand income-generating programs for women, linking them to market opportunities for sustainability and empowerment. Successful women-run saving and credit schemes in women's groups should be institutionalized with proper oversight to prevent mismanagement and build trust.
- iii. To overcome time constraints and the “capacity paradox,” participatory events should be held when women are more available—such as mid-day of weekends. Virtual platforms can broaden access for those unable to attend in person. LGs and NPOs should also promote shared household responsibilities through family dialogue and orientation sessions, enabling women to engage without being overburdened.

Strengthening the Support System

- i. Strengthen the implementation of neighborhood-level planning meetings, which are recognized in literature and policy as foundational for citizen participation. However, their current practice remains weak. Federal and provincial governments should support and monitor LGs to improve implementation. Support could include

financial resources, training for bureaucrats and elected officials, development of clear guidelines and manuals, and legal frameworks mandating implementation. Given their community-level nature, these meetings can address the *capacity paradox* and serve as key entry points for women, offering *exposure* and *initiating a virtuous cycle of participation*.

- ii. Facilitate community-level dialogues and awareness-raising programs to build a supportive social environment for women's participation, aimed at reducing community-level criticism and social stigma.
- iii. Recognizing the critical role that female ward members play—as advocates for women's issues, facilitators of women's access to LG, coordinators of capacity-building initiatives, and challengers of patriarchal decision-making norms—their institutional capacity should be further strengthened. LGs should provide targeted training, mentorship opportunities, and motivational support to enhance their leadership and governance skills. In addition, appropriate financial compensation and formal recognition for their contributions should be ensured. By developing these elected women representatives as role models and mentors, they can serve as influential guides for other women in the community, thereby amplifying women's collective agency and participation in local governance.
- iv. Establish mentorship and peer-guidance mechanisms where experienced women participants support and encourage those with less experience. Identify, reward, and train role models to lead these guidance structures. However, the current male-centered structure of support may limit the long-term empowerment of women, emphasizing the need for more gender-equitable guidance systems.
- v. Strengthen women's groups as key platforms for empowerment and participation by providing targeted training and formal recognition through local policies. Support should include cost-sharing for collective action and promotion of inter-group networking to amplify their voice. Women-only forums should also be supported as safe spaces for leadership development, solidarity, and open dialogue.
- vi. Promote inclusive, mixed-gender platforms like NDAs and UCs to foster joint problem-solving and challenge gender norms. To ensure women's voices aren't overshadowed, LGs should enforce affirmative action and adopt gender-sensitive

practices—such as rotating facilitators, guaranteed speaking turns, and consensus-based decisions—to support meaningful participation.

- vii. Though designed to be gender-neutral, procedures for local development projects often disadvantage women. LGs should apply a gender equity lens by simplifying processes, ensuring inclusive communication, and offering tailored support. Additional technical and logistical assistance can help women navigate documentation and reporting, promoting fair and effective participation.
- viii. Develop inclusive and accessible information-sharing mechanisms to ensure all women have access to participation-related information. While digital platforms (e.g., internet and social media) should be maximized, complementary offline dissemination methods—through women’s groups, NDAs, and other local institutions—should be employed to reach those without digital access.

7.2.2 Limitations of the study and recommendations for future studies

This study was conducted in urban and semi-urban areas of LMC, a municipality located adjacent to Nepal’s capital. While the findings may be broadly representative of urban settings with similar geographic and socio-cultural characteristics, several contextual factors are specific to LMC. Nepal is characterized by high ethnic diversity and regional disparities in development, which result in significant variation in key capacity indicators such as education, knowledge, skills, and income. Although national-level policies are relatively uniform across the country, community characteristics—including cultural norms, gender roles, stereotypes, and belief systems—can differ widely. Therefore, this study does not claim generalizability to all regions of Nepal. Future research should consider examining communities with distinct socio-cultural contexts to capture inter-community variations and develop a more comprehensive understanding of women’s participation across the country.

Methodologically, the study’s reliance on qualitative data collected from a limited number of respondents presents further limitations. While this approach was effective in identifying a range of influencing factors, it could not fully capture the breadth and depth of those influences. A large-scale quantitative survey, complemented by follow-up in-depth qualitative research, would allow for a more robust exploration of the factors affecting women's participation. Moreover, because this was an exploratory study focused on

identifying multiple factors, it did not provide a detailed analysis of the individual roles, interactions, or mediating effects of specific variables. Future research should include focused, in-depth investigations into every factor to better understand their specific influence on women's participation in local governance.

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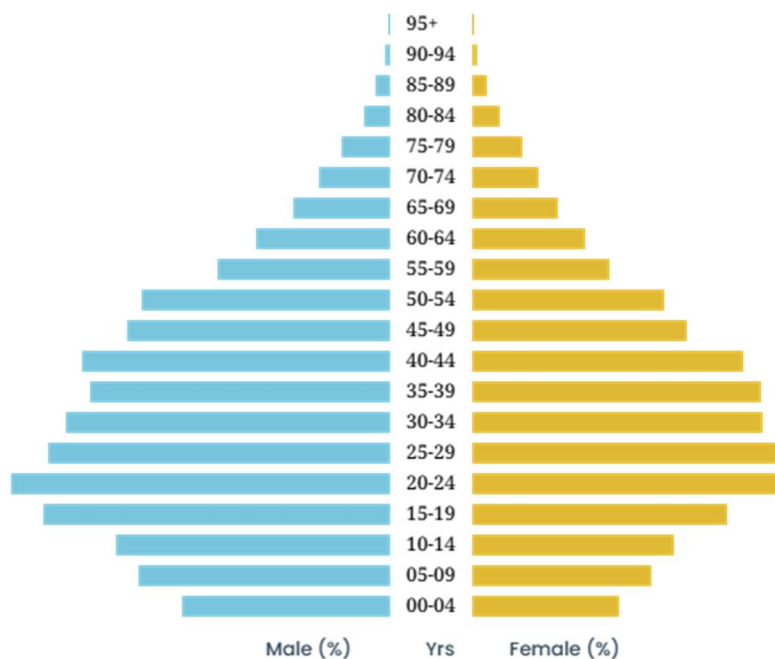
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Appendix I: A Brief Profile of the Study Area

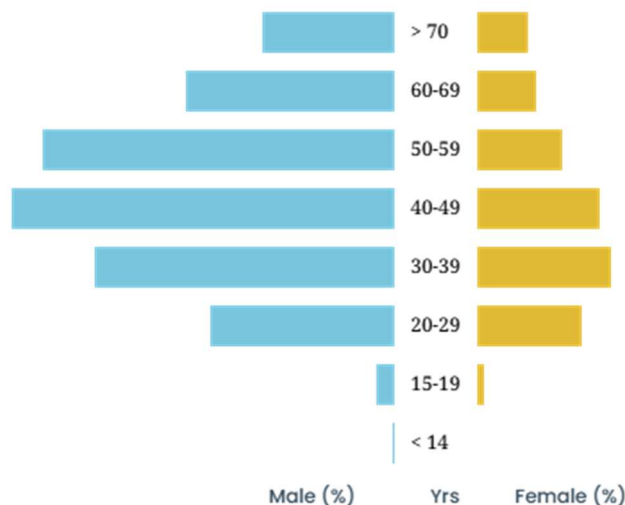
Area: 36.12 Square kilometers; Number of wards: 29

Key Demographic Indicators

- Total Population: 294,098 [Male: 49.9%; Female: 50.1%]
- Population density: 8,142
- Total households: 77,159 {percentage of female headed households: }
- Population by 5-year age group and sex

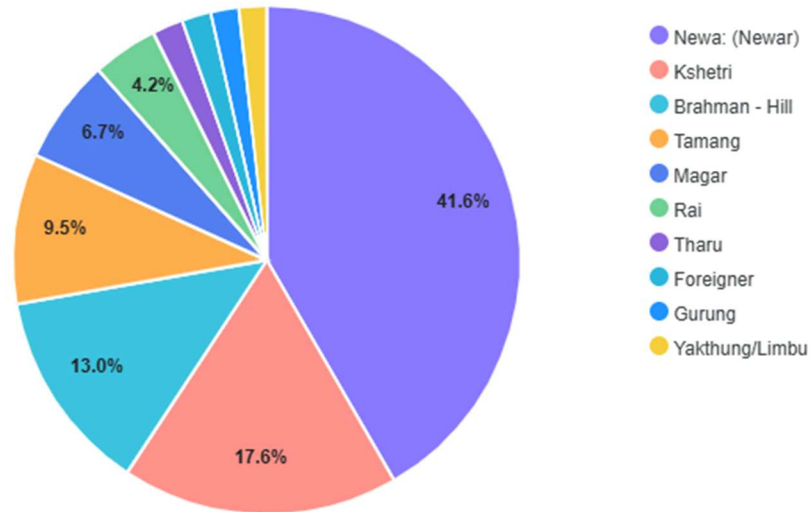


- Number of household heads by sex and age groups

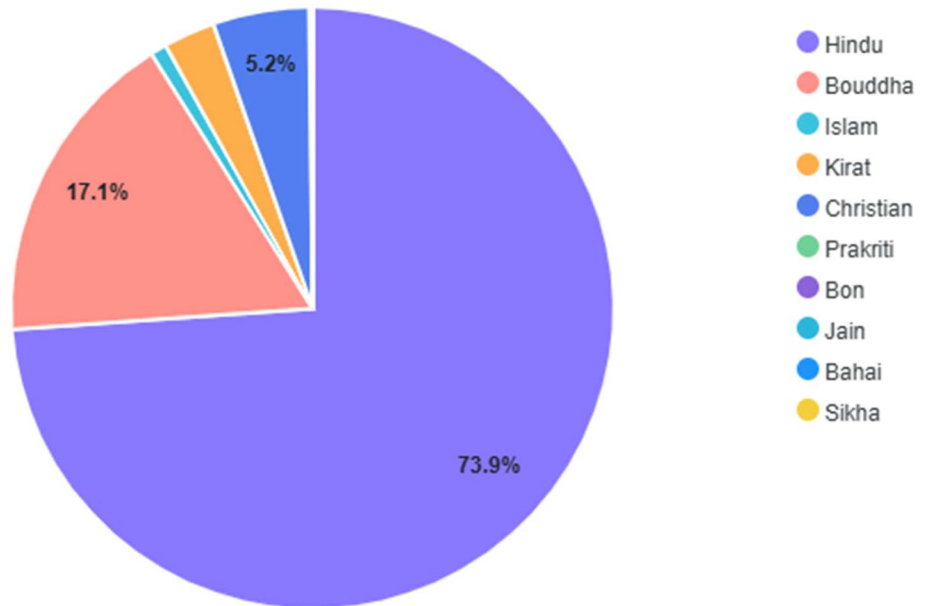


Key Social Indicators

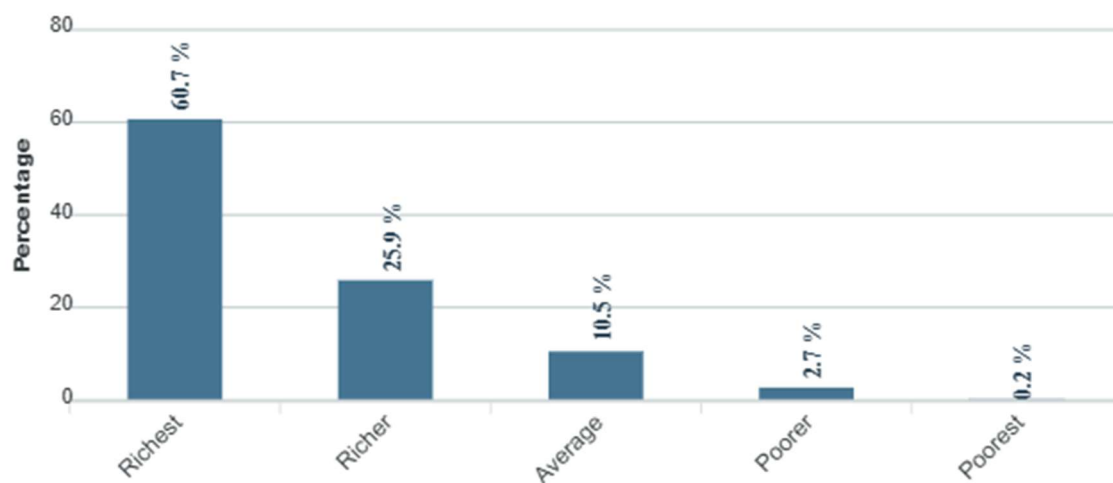
- Literacy rate: 90.0% [Male: 94.6%; Female: 85.4%]
- Population percentage based on caste (top 10 by size)



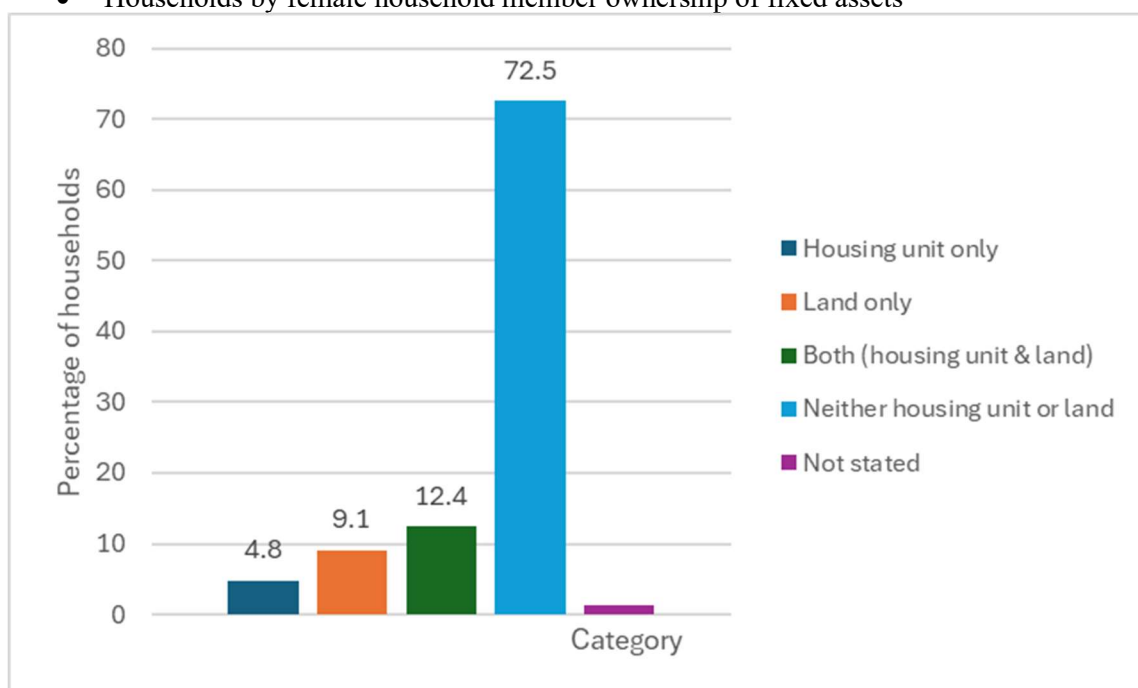
- Population percentage based on religion



- Households by wealth quintile



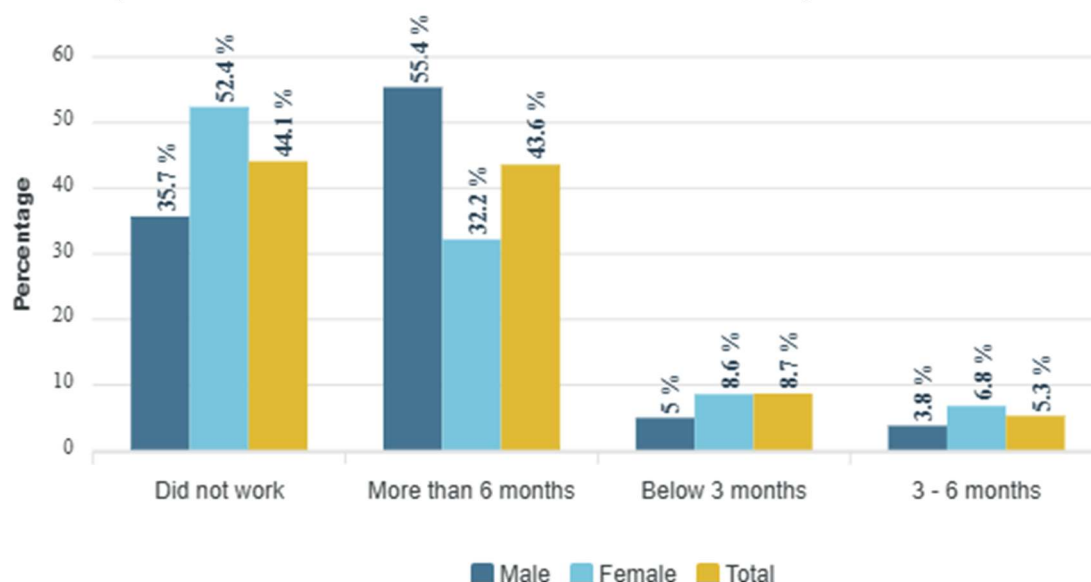
- Households by female household member ownership of fixed assets



- Population distribution by level of educational attainment

Category	Percentage
Intermediate	20.2
Primary education	16.8
Graduate	14.2
Lower secondary	12.7
Upper secondary	12.2
SLC	11.2
Postgraduate equiv. & above	8.5
Early childhood	2.5
No level	1.2
Not stated	0.6
Other	0.1

- Population distribution based on duration of economic activity



Geographical and administrative information of the study area is obtained from the official website⁸ of the Metropolitan City office of LMC. Similarly, all socio-demographic data, graphs, and tables are downloaded from the official website⁹ of the National Statistics Office, Nepal. Other demographic information of the study area can also be accessed on the same website.

⁸ <https://lmc.gov.np/node/3>

⁹ <https://censusnepal.cbs.gov.np/results/local-level?province=3&district=30&municipality=2>

Appendix II: Respondents Profile

Interviews

Code	Age*	Education level*	Occupation	Date of interview	Time	Duration	Location
I.1	35-40	University	Family runs a small shoes factory.	2025.01.09	12:15	40 mins	Ward Office, Interviewee's chamber
I.1 was former member to a ward committee and currently working as advisor in 'Women, Children and Development Committee' of the ward. She has been appointed by current chairperson in this role. I was referred to her by the ward chairperson. According to the chairperson, she is the most active women in the ward area. I phoned her and decided the date, time, and place for interview. Ethnicity: Brahmin/Kshetri.							
I.2	40	Master degree	Homemaker, Stock market trading	2025.01.09	13:30	30 mins	Community Learning Center
I.2 was an active woman, but compared to I.1, she was less active. When I asked I.1 to introduce a comparatively less active or nonactive woman despite having the potential to participate, she called I.2 and managed an appointment. Over the phone, I also talked to her and decided time and place for interview. She also works as a volunteer in a Community Learning Center near to her home. She lives with her husband and a son 23 years old. She has recently started participation in I.1's inspiration but still is skeptic of it's usefulness. She has an experience of teaching in an adult education program. Ethnicity: Brahmin/Kshetri.							
I.3	35-40	Bachelor degree (drop)	Homemaker and FCHV	2025.01.10	11:00	25 mins	Ward committee's office
She is a female community health volunteer (FCHV) and a 'facilitator' in the National Health Insurance Programme. She is not much active in participatory mechanisms but has a little experience. Education level: She dropped university, when she married. She is from Newar community. She lives in a joint family with her husband, kids, and her husband's parents. One son is in standard 10 and another in four. She is not involved in women's groups. Ward secretary (my friend) arranged this meeting. Ethnicity: Newar.							

Code	Age*	Education level*	Occupation	Date of interview	Time	Duration	Location
I.4	40	Basic	Agriculture, Small store run by family	2025.01.10	11:45	45 mins	Ward committee's Office's hall
Member of a ward committee elected in female quota; A daughter of former political leader; Joined politics due to her father's legacy.; Unmarried; Lives with her mother, brother and brother's family. Ward secretary (my friend) arranged this meeting. Ethnicity: Newar.							
I.5	40	University degree	Homemaker, no full time job	2025.01.12	15:00	16 mins	Ward secretary's Office
<u>A Samajik Melmilapkarta (community reconciliator)</u> . She is also an active member of a political party. She is also chairperson in two school management committees. She is also a chairperson in a women's group. She was a teacher, who sacrificed her career for family, especially kids. The ward secretary (known to me) called her and invited for this interview. She had good relationship with the secretary so couldn't deny. Otherwise, she had just returned from a trip, and was resting when was phoned. Because she was tired, she insisted to end the interview sooner. She has two kids, one is 12 and another is six. According to her, she doesn't have personal income, rather dependent on family income. Ethnicity: Newar.							
I.6	40	School level	FCHV	2025.01.12	16:15	34 mins	Local health post
Also secretary in a health committee of ward level. The ward secretary (known to me) called her and invited for this interview. She gave an appointment for 15:00 but she could come after 16:00 only. She took me to her office, i.e., the local health post, which was closed, but she had the key. The interview was disturbed because her husband came and left. She was also frequently receiving calls. A ward member also came at the last and waited for her. Then she looked impatient, so I decided to close the interview. Ethnicity: Newar.							
I.7	Around 40	University degree	Not stated	2025.01.13	12:00	41 mins	Ward Chairperson's office
The ward secretary was my friend, who called I.7 and decided the date, time, and place of the interview. I.7 is the secretary of the ward committee of a political party. She is also the secretary of a Neighborhood Development Association (NDA). She plans to contest for the position of ward chairperson in the next election. Being a political leader and influential person, she actively participates in the local governance. Moreover, she also encourages other women to participate. Ethnicity: Non-newar.							

Code	Age*	Education level*	Occupation	Date of interview	Time	Duration	Location
I.8	Around 40	University degree		2025.01.15	14:00	25 mins	Ward committee's Office, a corridor
I visited to the ward office, met her, requested for an interview, she made me wait for two hours and gave me the interview. She is elected member of the ward committee (in female quota). In previous election, she was defeated. Ethinc community: Newar.							
I.9	Around 40	School level	Small grocery store run by family	2025.01.17	11:00	42 mins	Ward Committee's office hall
I called the ward secretary. The ward secretary gave me her phone number. I contacted her and fixed the time and place of the interview. She is serving ward committee's member elected in quota reserved for women. Before the interview, she had taken permission from the ward chairperson to participate in the interview. Although the interview was recorded for 42 minutes, after that, we had an informal conversation with the respondent over tea for about half an hour. She lives in a joint family- father and mother in law, husband and daughters. She is a member to a political party. She had experience of engaging in social service through a religious organization, which gained her recognition, led to membership in a political party and contesting in election.							
I.10	30-35	Masters degree	A civil servant	2025.01.17	14:00	34 mins	Garden of LMC office
She is administrative officer in LMC's office, who has significant period of experience working as secretary in a ward. She has pretty good knowledge of participatory governance mechanisms in practice in LMC.							
I.11	Around 45	University level	A civil servant	2025.01.19	14:00	21 mins	Ward committee's Office's Hall
Currently working as a secreatry in a ward committee's office. She had pretty good experience of working with women, women's group and pretty much knowledge on citizen participation.							
I.12	36	Bachelors degree	Homemaker	2025.01.22	11:00	85 mins	Her house
When I asked a ward chairperson about women with experience of public participation, he gave me phone number of I.12 . I contacted her and decided date the date, time, and place for interview. Her husband was also present in the home, but he didn't intervene. Instead, he left in the middle of the conversation. She is educated but couldn't complete her Masters degree due to family responsibilities. She married at an early age, 18, but it seems it was her decision. Her father was a teacher, and her mother was also an educated woman who sacrificed her career for the sake of her husband and family. Similarly, this respondent also sacrificed her career							

Code	Age*	Education level*	Occupation	Date of interview	Time	Duration	Location
for her husband and family. Her husband is a professor at the university and a reputed man. Now she lives with her father-in law, husband and two kids going to school. She is a chairperson in a women's group and has experience of two user committees.							
I.13	35-40	University degree	FCHV	2025.01.23	12:00	40 mins	Ward committee's office
I called the ward secretary, who managed interview with I.7, to manage interview with other women, too. He asked me to come into office by 11:00. When I met him, he made two calls and invited two women into the ward office- <i>I.13</i> and <i>I.14</i> . Former is secretary in a women's group and has experience of working in three user committees in various responsibilities including that of chairperson. She is a married woman with kids, who lives in a large joint family. She is an educated, confident, and a woman with significant experience of public life. Another interviewee, <i>I.14</i> , entered during the interview and both were interviewed together for some time. Then, <i>I.13</i> left for her some business. Ethnicity: Kshatriya.							
I.14	60 plus	Bachelors degree	She and her husband run a kitchenware's store.	2025.01.23	12:30	70 mins	Ward committee's office
She lives with her husband (a retired professor). She is former government officer, who has significant experience in women's development department. She had resigned from civil service due to her family issues. She has three, her kids are adults and abroad for higher studies. Now, she is engaged in social service and volunteering activities. She also has a significant experience of community development activities. She is a chairperson in a women's group. Ethnicity: Brahmin.							
I.15	45-50	School level	Grocery store	2025.01.24	Afternoon	60 mins +	At her grocery store
I met some ward members in a ward committee's office. I had some conversation with them and requested to manage an interview with some women with experience in public participation. Then they called her and gave me her number. I also called her, asked her location and reached. She had just opened her very small grocery store located in a narrow alley in a very old settlement of highly dense residential area of LMC. She had recently divorced her husband, according to the ward committee members. She denied the interview to be recorded. So I noted down key points in my diary and turned into a brief transcript as soon as I reached home. She is involved in a women's group in various responsibilities from long time ago. She is a treasurer in her neighborhood's NDA.							
I.16	30-35	Master degree	A civil servant	2024.11.24	11:05	60 mins	A public park

Code	Age*	Education level*	Occupation	Date of interview	Time	Duration	Location
Actually this interview was done as pilot interview before main stage of data collection. But due to richness of data, this was also used in main analysis. She is a officer level administrative staff in LMC with significant years of experience in working as secretary in various ward committee's offices. Therefore, she has a very good knowledge on women's status in LMC, their participation and overall participatory governance arrangements of the local government.							

**Estimated or reported by the interviewee.*

Group Discussions

Code for Group	Number of participants	Date of Discussion	Time	Location	Duration	Remarks
G.1	6 women	2025 April 13	Afternoon	Meeting hall of an NPO	58:00	
<i>Participants Profile</i>						
<i>Code</i>	<i>Occupation</i>	<i>Marital status</i>	<i>Education (Estimated)</i>	<i>Age (Estimated)</i>	<i>Others</i>	<i>Remarks</i>
<i>G.1 P.1 (A)</i>	<i>Director of the NPO</i>	<i>Married, has a kid</i>	<i>Masters Degree</i>	<i>35</i>		
<i>G.1 P.2 (B)</i>	<i>Teacher/ Employee of NPO</i>	<i>Married</i>	<i>Higher Education</i>	<i>30-35</i>		
<i>G.1 P.3 (C)</i>	<i>Teacher/ Employee of NPO</i>	<i>Married</i>	<i>Higher Education</i>	<i>30-35</i>		
<i>G.1 P.4 (D)</i>	<i>Teacher/ Employee of NPO</i>	<i>Married</i>	<i>Higher Education</i>	<i>30-35</i>		
<i>G.1 P.5 (E)</i>	<i>Teacher/ Employee of NPO</i>	<i>Unmarried</i>	<i>Higher Education</i>	<i>25-30</i>	<i>Lives with father and mother</i>	

<i>G.1 P.6 (F)</i>	<i>Board member of NPO</i>	<i>Married, has adult kids</i>	<i>Illiterate</i>	<i>60 plus</i>	<i>Wife to a local priest</i>	
G.2	3 Women	2025 April 17	Afternoon	A local gym	40:00	A women's group members
Participants Profile						
<i>Code</i>	<i>Occupation</i>	<i>Marital status</i>	<i>Education (Estimated)</i>	<i>Age (Estimated)</i>	<i>Others</i>	<i>Remarks</i>
<i>G.2 P.1 (A)</i>	<i>Teacher in a local school</i>	<i>Married, has school going kids</i>	<i>Bachelors degree</i>	<i>40</i>	<i>Women's group-secretary</i>	<i>I.9 (ward member) was present throughout the discussion</i>
<i>G.2 P.2 (B)</i>	<i>Small family businesses</i>	<i>Unmarried-living with parents and brother's family</i>	<i>Higher studies</i>	<i>40</i>	<i>President in the group</i>	
<i>G.2 P.3 (C)</i>	<i>Tailoring</i>	<i>Married, has small kids</i>	<i>School Level</i>	<i>35-40</i>	<i>Treasurer in the group</i>	
G.3	3 Women	2025 April 18	Afternoon	Women's group office	30 mins	A women's group members
<i>G.3 P.1 (A)</i>	<i>Small shop of Kitchenwares</i>	<i>Married</i>	<i>Basic</i>	<i>50</i>	<i>Vice-president of group</i>	
<i>G.3 P.2 (B)</i>	<i>Her family runs a restaurant, a liquor shop and also has a farm.</i>	<i>Married, has grown and independent kids.</i>	<i>Basic</i>	<i>50</i>	<i>President of group</i>	

<i>G.3 P.3 (C)</i>	<i>Tailoring</i>	<i>Married, has small kids</i>	<i>School level</i>	<i>30-35</i>	<i>Treasurer</i>	
<i>G.3 P.4 (D)</i>	<i>Trekking company</i>	<i>Married, has school going kids</i>	<i>Higher studies</i>	<i>40</i>	<i>Member</i>	
<i>G.3 P.5 (E)</i>	<i>Teacher or an employee in a local school</i>	<i>Married</i>	<i>Higher studies</i>	<i>40-45</i>	<i>Member</i>	
<i>G.3 P.6 (F)</i>	<i>Homemaker supported by kids</i>	<i>Married, has kids and grandkids</i>	<i>Very basic (now learning A B C D)</i>	<i>57</i>	<i>Member</i>	<i>Researcher's relative</i>

Appendix III: Interview Guide

III.I Interview guide used for women with experience in PGMs

Warm-up questions

- Please tell me something about yourself. I expected them to share their education level, family structure, occupation, income level, etc.
- What public or community activities have you participated in?

Main Questions:

- Describe your most recent experience of participating in public decision-making processes. Please describe how the information was received, how you decided to participate, how you participated, and what the participation outcomes were. *Note: Public decision-making refers to, for example, participation in public meetings, delegations to local government to advocate for specific agendas, submissions of written applications, informal meetings with officials to influence, etc.*
- What are the reasons for your participation? *To understand what makes them participate, or the enabling or supportive factors.*
- What challenges did you face before, during, and after the participation? What did you do to fight these challenges? *To understand the discouraging factors or barriers and how women are fighting these barriers.*
- Will you continue your participation in the future? Please explain the reasons. *To understand the conditions favored by women.*

Closing questions:

- What do you like to say at the end? Do you have any questions for me? Do you have any comments about this conversation?

III.I Interview guide used for women without experience or with comparatively lower experience in PGMs

Warm-up questions

- Please tell me something about yourself. *Profession, education, occupation, family life, personal life, community life, public life, etc.*
- What public or community activities have you participated in? *The probable answer is no or very few occasions.*

Main Questions:

- Do you know any participatory governance mechanisms in your community or local government? If yes, what are they? *To understand their awareness level .*
- What are the reasons for your non-participation? *To understand the factors that are hindering their participation.*

- What do you think about the people who participate in such forums? *To understand the meaning and value of participation for them.*
- If you get the opportunity, would you like to participate? Please explain the reasons. *To understand the supportive factors, meaning, and values prioritized by women.*
- In what context or conditions do you like participating in such forums? *To understand the supportive factors.*
- Do you see any benefits in participating? Explain them, if any. *To understand the value.*
- Do you think participation is essential for you? Explain your reasons. *To understand the meaning.*

Closing questions:

- What do you like to say at the end? Do you have any questions for me? Do you have any comments about this conversation?

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Title of Thesis: **The Factors Influencing the Depressive Symptoms
and Anxiety Disorders of Higher Secondary
Students of Bangladesh after COVID-19**

Governance Program,
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Abstract

This study examines the factors influencing depressive symptoms and anxiety disorders among higher secondary students in Bangladesh following the COVID-19 pandemic, adversely affecting their mental well-being and educational outcomes. The primary objective was to identify determinants of students' mental health guided by the research question: "What are the factors influencing depressive symptoms and anxiety disorders in HSC students after COVID-19?"

Utilizing a cross-sectional survey and stratified random sampling, data were collected from 407 students aged 15–18 across urban and rural areas. Logistic regression analysis identified socioeconomic status, social capital, academic engagement, and lifestyle changes as significant predictors of mental health outcomes. Findings revealed that urban residency, diminished social interactions, disrupted academic routines, and unhealthy lifestyle behaviors increased risks for depression and anxiety. Conversely, strengthened family relationships, peer support, and social interaction emerged as protective factors. Study limitations include the cross-sectional design precluding causal interpretations and reliance on self-report measures, potentially introducing bias. Exclusion of longitudinal data and qualitative insights also limits comprehensive understanding.

This research offers critical insights for policymakers, educational authorities, and mental health professionals in Bangladesh, emphasizing the need for integrated interventions to mitigate mental health impacts post-pandemic.

Table of Contents

Table of Contents.....	ii
List of Tables.....	vi
List of Figures.....	viii
List of Acronyms.....	ix
CHAPTER ONE: INTRODUCTION.....	1-8
1.1 Research Background.....	1
1.2 Problem Statement.....	3
1.3 Research Objectives and Research Questions.....	4
1.4 Research Methodology.....	5
1.5 Expected Outcomes.....	7
1.7 Thesis Structure.....	7
CHAPTER TWO: SITUATION ANALYSIS.....	9-19
2.1 Introduction.....	9
2.2 Identifying the Issues.....	9
2.2.1 Socio-economic conditions of the family during the COVID-19 pandemic.....	9
2.2.2 Changes in the lifestyle pattern among students during the COVID-19 pandemic.....	10
2.2.3 Changes in society and the way of communication during the pandemic.....	11
2.2.4 Changes in the educational system due to the COVID-19 pandemic.....	12
2.3 Present Statistics of HSC Students in Bangladesh.....	14
2.4 Present Conditions of Bangladeshi students with the prevalence of depression and anxiety.....	16
2.5 Conclusion.....	19
CHAPTER THREE: LITERATURE REVIEW.....	20-42
3.1 Introduction.....	20
3.2 Effects of COVID-19 on Students' Mental Health (Depression and Anxiety) and Social Capital.....	20
3.3 Effects of COVID-19 on Students' Mental Health (Depression and Anxiety) and Lifestyle Patterns.....	22

3.4 Effects of COVID-19 on Students' Mental Health (Depression and Anxiety) and Grades and Learning (Academic Achievements).....	23
3.5 Theoretical discussion on Social capital, Lifestyle pattern, Academic achievements, and Mental health (Depression and Anxiety)...	25
3.5.1 Concepts of Social Capital and Its Application in Education.....	25
3.5.2 Concepts of Lifestyle Patterns and Their Application in Student Life.....	27
3.5.3 Concepts of Mental well-being (depression and anxiety) and its relation to adolescents.....	30
3.6 Tools for Measuring Depression and Anxiety (PHQ-9 and GAD-7): Comparisons with other tools and reasons for use in the survey.....	32
3.6.1 Comparison with Other Screening Instruments.....	33
3.6.2 Use Across Diverse Populations and Settings.....	35
3.7 Literature gap and conceptual framework.....	36
3.8 Research Objectives Alignment.....	41
3.8.1 Objective 1.....	41
3.8.2 Objective 2.....	41
3.9 Conclusion.....	41
 CHAPTER FOUR: RESEARCH METHODOLOGY.....	 43-57
4.1 Introduction.....	43
4.2 Research Objective and Research Questions.....	43
4.2.1 Research Objective.....	43
4.2.2 Research Questions.....	43
4.3 Research flow.....	44
4.4 Development of Hypotheses and Analytical Framework.....	45
4.4.1 Moderating variable: Socio-economic Status.....	45
4.4.2 Independent variables.....	45
4.4.3 Dependent variables: Depressive symptoms and Anxiety Disorders.....	45
4.4.4 Analytical Framework.....	47
4.5 Research Methods.....	49
4.5.1 Data Collection Method.....	49
4.5.2 Sampling Technique.....	49
4.5.3 Target Population and Sample Size Determination.....	50
4.5.4 Conducting the Survey through a Questionnaire.....	50

4.6 Data Collection Procedure and Ethical Considerations.....	55
4.6.1 Approval and Permissions.....	55
4.6.2 Pilot Study.....	55
4.6.3 Main Survey.....	56
4.7 Data Analysis Plan.....	56
4.7.1 Descriptive Statistics.....	56
4.7.2 Inferential Statistics.....	56
4.8 Summary.....	57
 CHAPTER FIVE: SURVEY AND ANALYSIS.....	 58-93
5.1 Introduction.....	58
5.2 Descriptive Analysis.....	58
5.2.1 Demographic Characteristics.....	58
5.2.2 Social Capital.....	60
5.2.3 Academic Achievements.....	62
5.2.4 Lifestyle Pattern Changes.....	66
5.3 Mental Health: Depression and Anxiety.....	68
5.4 Dependency Analysis: Factors Associated with Mental Health.....	70
5.4.1 Demographic Data and Its Association with Depression and Anxiety.....	71
5.4.2 Social Capital and Its Association with Depression and Anxiety....	73
5.4.3 Academic Achievements and their Association with Depression and Anxiety.....	74
5.4.4 Lifestyle Patterns and Their Association with Depression and Anxiety.....	75
5.4.5 Correlation heatmap.....	76
5.5 Result of Multiple Binary Logistic Regression.....	77
5.5.1 Logistic Regression: Social Capital and Mental Health (Depression & Anxiety).....	78
5.5.2 Logistic Regression: Academic Achievement and Mental Health (Depression & Anxiety).....	80
5.5.3 Logistic Regression: Lifestyle Patterns and Mental Health (Depression & Anxiety).....	85
5.6 Institutional Support and Help-Seeking.....	88
5.7 Coping Strategies Adopted by Students.....	89
5.8 Open-ended Questions Analysis.....	90

5.8.1 Changes in Educational Practices for Mental Well-Being.....	91
5.8.2 Students' Suggestions on Mental Health Improvement in Educational Institutions.....	92
5.9 Summary.....	93
CHAPTER SIX: DISCUSSION AND CONCLUSION....	95-113
6.1 Introduction: Overview of Key Findings and Context.....	95
6.1.1 Socio-Demographic Context and Mental Health (H1).....	95
6.1.2 Social Capital and Mental Well-Being (H2).....	97
6.1.3 Academic Achievements and Mental Health (H3).....	100
6.1.4 Lifestyle Patterns and Mental Health (H4).....	103
6.2 Implications of Findings.....	106
6.3 Recommendations for Policy and Practice: Bangladesh Context.....	108
6.4 Limitations and Future Research.....	111
6.5 Conclusion.....	113
References.....	114-128
Appendix.....	129-166

CHAPTER ONE: INTRODUCTION

1.1 Research Background

The COVID-19 pandemic triggered a global economic downturn that severely impacted numerous sectors worldwide, including Bangladesh. The effects were evident in various areas, including education, industry, and business. The country experienced a prolonged lockdown lasting several months, while educational institutions remained shut for nearly two years. As a result, many students have undergone a long period of idleness at home and around for several months, which leads them to develop various mental and psychological problems along with disturbances in educational and social life. According to UNESCO, 1.3 billion students were affected by educational institution closures in 186 countries when the COVID-19 pandemic broke out worldwide.

The COVID-19 pandemic has severely disrupted the academic lives of students in Bangladesh. With schools and universities unable to conduct in-person classes due to public health restrictions, students have faced prolonged interruptions to their education. In response, many educational institutions shifted to online learning platforms after the initial chaos subsided. However, for a large number of students in Bangladesh, particularly those from rural regions where access to high-speed internet is limited or nonexistent, this transition has presented substantial challenges, exacerbating existing educational inequalities. The shift to online learning has contributed to mental health challenges by increasing reliance on smartphones and the internet, limiting social interaction, disrupting daily routines, and confining students to their homes, leading to an imbalance in cognitive health status (Monir *et al.*, 2024).

The disruption in students' lifestyles has negatively affected both their daily routines and academic performance. Excessive use of social media is further disturbing their ability to maintain a healthy balance in their social lives, which is contributing to a decline in their mental health and overall well-being. The COVID-

19 pandemic is primarily a threat to short and long-term physical health; experiences from 917 students from eight universities in the Rhine-Neckar region in Germany showed that, besides students' physical health, their mental health, social well-being, and academic performance were also negatively affected by the pandemic (Gewalt et al., 2022).

The Socio-economic and Demographic Survey Report, 2023 (conducted by BBS) reveals that the rate of students who did not return to educational institutions after the Corona pandemic is 2.24%, and 18.87% of the total population (aged 15-24 years) is not engaged in any Education, Employment or Training (NEET- an SDG indicator). Among the affected households in the country, 73.84% faced multiple financial difficulties, the highest 11.51% of households faced difficulties with expensive living costs, 5.01% of households faced difficulties of losing job/work, 3.07% of households faced reduction of savings and 2.06% of households faced closure of business/business activities. The unemployment rate for people aged 15 years and above is 3.29%. These turmoil situations in families and surroundings also trigger the development of mental unwellness, which disturbs the social and educational life of students.

Bangladesh is a small country in South Asia and is the eighth-most populous country in the world. This most densely populated country has a population of 170 million in an area of 148,460 square kilometers and is now observing the typical stage of demographic dividend with a median age of roughly 28 years, with One-fourth of the country's total population in the 15-29 age group. In numbers, the country's current youth population is 45.9 million, according to the census report published by the Bangladesh Bureau of Statistics (BBS, 2022). This favorable age structure offers significant potential for driving our economic growth, known as the demographic dividend, which started in 2007 and is projected to continue until 2040. It is a one-time "demographic window of opportunity" before the dependency ratio rises again with the growth of the elderly population; however, it is not automatic or guaranteed that this one-time demographic window of

opportunity will lead to a "demographic dividend" if this opportunity is not utilized correctly (UNFPA).

To make the most of Bangladesh's demographic dividend, the mental well-being, education, and overall development of its youth must be given top priority. With 45.9 million young people forming the foundation of the country's future workforce, it is critical to safeguard their mental and emotional health to ensure they can contribute effectively to the nation's development. The disruptions caused by the COVID-19 pandemic—such as interruptions in education, growing mental health concerns, and socio-economic hardships—must be addressed to prepare this generation for future opportunities. If these students are not adequately supported, the demographic dividend may turn into a demographic debt, adversely affecting the country's economic growth and social stability. Neglecting their needs could result in the loss of this one-time demographic advantage, creating a generation unable to drive the economic and social progress necessary for sustainable development. Focused investments in mental health services, equitable education, and skills development are essential to transforming this demographic opportunity into real and lasting progress and prosperity for the nation.

1.2 Problem Statement

According to the World Health Organization, 10–20% of adolescents experience psychiatric disturbance or mental health problems, and half of all such conditions emerge by the age of 14 (Mori H *et al.*, 2022). The COVID-19 pandemic is linked to exceptionally high levels of psychological distress among students, and it can also create symptoms similar to those seen in post-traumatic stress disorder (PTSD) (Piya *et al.*, 2022). A study found that 55.2% of students experienced severe psychological distress during online learning during the COVID-19 period (Mozid, 2022).

During the COVID-19 pandemic, depressive symptoms among university students in Bangladesh were reported at 49.4% during the panic period and

increased slightly to 52.4% in the post-panic period, indicating a significant mental health concern for this population. (Paul et al., 2022).

Investigation shows that age, sex, education, mother's occupation, total monthly income, playing sports, doing household chores, going out of home, watching television, using the internet, attending online classes, changing food habits, and communicating with friends had a positive significant association with mental health burdens (Afrin *et al.*, 2022).

Several studies (Billah *et al.*, 2023; Wang, 2024; Monir *et al.*, 2024) found that limited social support systems exacerbated mental health issues as students struggled to cope without in-person connections. Students also reported dissatisfaction with their academic performance, which contributed to stress and anxiety, and the disruption of daily routines and learning environments further intensified these pressures.

There have been several studies related to post-COVID effects on students in different corners of the world, including Bangladesh. Most of them are conducted on Graduate or University students; some are on primary-level students. However, despite the significance of social capital, there is limited research on its impact on the health of young adults, especially Higher Secondary Certificate (HSC) students in Bangladesh and other developing countries. Most existing studies focus on students from developed countries and utilize cross-sectional data, which limits causal inferences.

Considering this situation, to cope with the prolonged psychological distress after COVID-19, to maintain this large population's mental well-being, and to develop actionable recommendations, it is necessary to find out the factors that actually affect the depressive symptoms and anxiety disorders in HSC-level students (15-18 years) in Bangladesh.

1.3 Research Objectives and Research Questions

The primary objective of this research is to explore and analyze the various factors contributing to depressive symptoms and anxiety disorders among Higher

Secondary Certificate (HSC) students in the post-COVID-19 context. By identifying these contributing elements, the study aims to gain a comprehensive understanding of the mental health challenges faced by students. Furthermore, the research seeks to develop actionable recommendations and identify effective strategies for reconstructing educational practices in a way that fosters mental well-being. The ultimate goal is to support the psychological resilience and academic success of Higher Secondary students in Bangladesh in the aftermath of the pandemic.

To identify and analyze the factors that contribute to depressive symptoms and anxiety disorders among Higher Secondary Students, the extensive literature review helps the author to develop the following two research questions:

1. What are the factors influencing depressive symptoms and anxiety disorders in HSC students after COVID-19?
2. What strategies and educational practices can be developed to address these factors and promote mental well-being among Higher Secondary students in Bangladesh post-COVID-19?

1.4 Research Methodology

This study employs a robust cross-sectional survey design to investigate the prevalence and factors associated with depressive symptoms and anxiety disorder among higher secondary students aged 15–18 years in both urban and rural areas. The chosen methodology effectively balances representation and feasibility by using a stratified random sampling technique to ensure proportional inclusion of participants across urban and rural settings and gender categories. This approach enhances the generalizability of the findings within the defined population.

Based on the previous literature review and research, the author developed four hypotheses and an analytical framework.

H1: Lower socio-economic status is associated with higher levels of depressive symptoms and anxiety disorders among students.

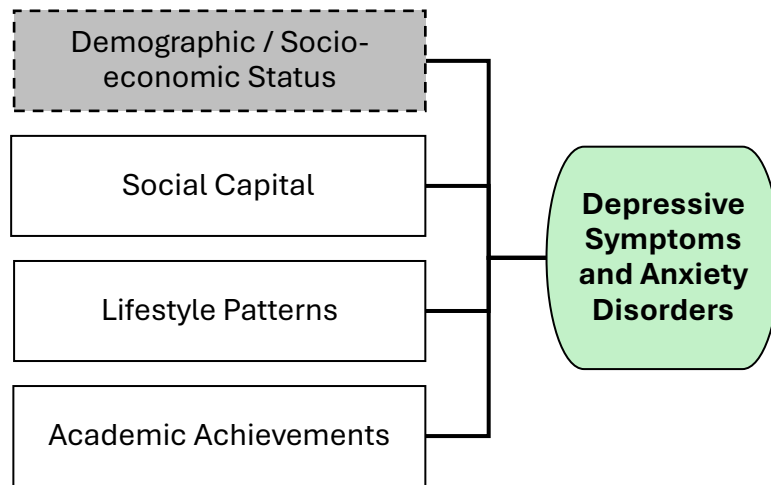
H2: Higher levels of social capital are associated with lower levels of depressive symptoms and anxiety disorders.

H3: Higher academic achievement is associated with lower levels of depressive symptoms and anxiety disorders.

H4: Healthier lifestyle patterns are associated with lower levels of depressive symptoms and anxiety disorders.

Fig 1.1:

Analytical framework



(Source: Constructed by the author)

Then, to verify these hypotheses, a structured, self-administered questionnaire is carefully designed to gather comprehensive data, using widely validated tools such as PHQ-9 and GAD-7 for measuring depressive symptoms and anxiety disorders. These standardized instruments improve the reliability and validity of the results, providing a strong foundation for subsequent data analysis. Additional sections addressing socio-economic factors, social capital, academic

activities, and lifestyle patterns ensure a multifaceted understanding of the variables influencing depressive symptoms and anxiety disorders.

Ethical considerations, including obtaining approvals, pilot testing, and maintaining participant anonymity, are integral to the study, ensuring adherence to research standards and participant trust. The data collection process in a controlled classroom environment further minimizes response bias and facilitates accurate data acquisition.

The analysis plan employs both descriptive and inferential statistical methods to provide a nuanced interpretation of the data. Descriptive statistics will summarize the demographic and variable-specific distributions, offering a clear profile of the study population. Inferential techniques, including chi-square tests, t-tests, and SPSS, will identify relationships between categorical and continuous variables. Multiple logistic regression analysis will determine the predictive power of the independent variables on depressive symptoms, quantifying their associations and allowing for insights into their relative impacts.

Overall, this methodology provides a comprehensive and systematic approach to exploring depressive symptoms and anxiety disorders among higher secondary students. The findings can inform targeted interventions and policies to improve mental health outcomes in this critical demographic.

1.5 Expected Outcomes

The study is expected to provide insights into the prevalence of depressive symptoms and their associated factors among Higher Secondary Students. The findings will help in designing targeted interventions to promote mental well-being and academic success among adolescents.

1.7 Thesis Structure

The structure of this thesis paper includes six chapters in total. Chapter one introduced the research context and background. Here, the research objectives and

research questions have been identified, and the method chosen is explained. A discussion of the expected outcomes of the research was presented at the end. Chapter two identified the issues of the existing mental well-being situation among the students in Bangladesh and its association with academic achievements, social capital, lifestyle patterns, and demographic status. In the third chapter, the author reviewed the relevant literature considering different theoretical understandings and the scholarly contributions to depressive symptoms and anxiety disorders in relation to social capital, lifestyle patterns, and academic achievements. The following chapter provides an overview of the research methodology. It explained the research design and analytical framework based on the research hypotheses. It also explained the rationale for the methods for measuring depressive symptoms and anxiety disorders. The fifth chapter is about analyzing the results. It analyzed the results of the questionnaire survey, presented the research results of descriptive and inferential findings, and provided a discussion. The final chapter deals with the discussion and the conclusion. The chapter provides an overview of the main findings, interpretation of the results, limitations of the research, and practical implications of the findings, as well as suggesting recommendations for policy implications.

CHAPTER TWO: SITUATION ANALYSIS

2.1 Introduction

The COVID-19 pandemic has had long-lasting effects on students' mental health worldwide (WHO, 2022). In Bangladesh, prolonged school closures (nearly two years) and nationwide lockdowns disrupted education and daily life. Students lost their day routines of schooling, peer interaction, and extracurricular activities, and many shifted abruptly to online learning. These upheavals have left students more vulnerable to stress, anxiety, and depressive symptoms. WHO estimates 10–20% of adolescents experience mental health problems even in normal times (Mori H *et al.*, 2022).

This chapter examines the key factors influencing higher secondary students' mental well-being, especially depressive symptoms and anxiety disorders after COVID-19. It first identifies key issues such as socio-economic strain on families, changes in lifestyle and communication patterns, and education system disruptions during the pandemic. Next, it reviews the overall student population statistics in Bangladesh and the present scenario of Bangladeshi students, including family economic status, lifestyle adaptations, social support shifts, and recent exam policy changes. Finally, it discusses current evidence on depression and anxiety prevalence after the pandemic. Together, these analyses provide the context and evidence base for understanding students' mental health (depression and anxiety) in the post-pandemic period.

2.2 Identifying the Issues

2.2.1 Socio-economic conditions of the family during the COVID-19 pandemic

Pandemic-related economic shocks strained many Bangladeshi households and thus impacted students. A recent survey by the Bangladesh Bureau of Statistics (BBS) found that over 73% of affected households faced one or more severe financial difficulties after COVID-19. Specifically, 11.5% of families struggled with higher living costs, 5.0% lost jobs, 3.1% saw savings wiped out, and 2.1% experienced

business closures. These hardships came on top of an already high poverty level, about 19.2% of the population lives below the poverty line (20.0% in rural areas) (Dhaka Tribune, January 30, 2025). Even among youth, economic vulnerability is evident; 18.9% of 15–24-year-olds are now neither in education, employment, nor training (NEET) (BBS, 2023).

A lower household income means fewer resources for education and healthcare, which in turn can worsen adolescents' stress and mental health. For example, job losses in the family have been linked to higher anxiety among students (Hossain et al., 2022). The national unemployment rate for age 15+ is about 3.3%, which, while modest, underestimates underemployment and informal job losses (BBS, 2023). Moreover, poverty in Bangladesh remains uneven: about 63% of urban people have financial accounts (Bank, Mobile Financial Services, etc.) versus only 37% in rural areas, reflecting persistent rural disadvantage (Socio-economic and demographic survey, 2023 by BBS). Altogether, the macroeconomic context (weak social safety net, limited financial access, rising poverty) amplifies family stress. Students from low-income families may face food insecurity, malnutrition, or extra family responsibilities, all of which can trigger emotional distress. These socio-economic pressures are strong “upstream” determinants of youth depression and anxiety. In short, in Bangladesh's socio-economic conditions, high poverty and financial instability are key factors placing higher secondary students at elevated risk for poor mental well-being.

2.2.2 Changes in the lifestyle pattern among students during the COVID-19 pandemic

COVID-19 caused significant disruptions to adolescents' daily routines and lifestyle habits. Extended home confinement meant students spent far more time on screens and less on physical activity than before. For instance, an extensive national study found that 43.7% of Bangladeshi adolescents reported weight gain during the pandemic, and 23.5% increased the number of meals they ate each day (Ferdous et al., 2024). At the same time, physical exercise did not meaningfully increase (only 13.5% exercised >3 times/week during lockdown, up slightly from 8.2% pre-

COVID) (Ferdous et al., 2024). In contrast, “screen time” escalated sharply; the share of adolescents spending more than 5 hours per week on screens for entertainment rose from 12.2% pre-pandemic to 27.3% during lockdown (Ferdous et al., 2024). These shifts toward sedentary behavior and excessive social media use disrupted standard sleep patterns and social interaction. Many students stayed up late or slept poorly due to constant online engagement. Mental health studies note that this “excessive use of social media” eroded a healthy social life balance (Mozid, 2022). Indeed, students themselves reported more emotional exhaustion, stress, and irritability as routines were upended (Ferdous et al., 2024). The lack of in-person sports, travel, or play deprived adolescents of stress relief outlets. Combined with fear of infection and family worries, these lifestyles change heightened feelings of isolation. A study of Bangladeshi university students confirmed that disrupted daily routines and heavy internet reliance during lockdown were associated with increased depression and anxiety (Ferdous et al., 2024). In summary, pandemic lockdowns rewired students’ lifestyles toward digital, home-bound patterns. This shift has been linked to declines in physical and mental well-being, such as depression and anxiety.

2.2.3 Changes in society and the way of communication during the pandemic

Beyond personal habits, the pandemic also altered the broader social environment. Public health restrictions forced society to adapt to social gatherings, community events, and in-person peer interactions, which were curtailed. As a result, Bangladeshi families and schools turned to digital means to stay connected. Internet data traffic surged by about 21% during lockdown (Internet Society, 2022). In fact, surveys found that social media platforms and video streaming services were the top online activities during the pandemic (Internet Society, 2022). This indicates a marked shift toward virtual communication. Digitally mediated socializing meant that many students went months without face-to-face contact with friends or teachers. Even after schools reopened, these habits often persisted: a significant portion of youth now maintain friendships and support networks online. At the same time, traditional support mechanisms were strained. Extended families and community gatherings (which often provide emotional support in Bangladesh) were

disrupted by distancing measures. Some households experienced increased tension under lockdown, straining family relationships.

On the positive side, many families reported closer bonds as parents spent more time at home, but family stress also rose due to job losses. Importantly, this period saw heightened awareness of mental health issues; however, stigma persists. The net effect is that students' communication patterns have substantially changed: they rely much more on mobile phones and social media than before. The lasting impact of this social transformation is still unfolding, but experts note that reduced in-person contact can erode social capital and increase loneliness (Billah *et al.*, 2023; Wang, 2024; Monir *et al.*, 2024). However, COVID-19 has reconfigured Bangladeshi society's communication landscape, with digital connectivity bridging some gaps and introducing new social challenges for adolescents.

2.2.4 Changes in the educational system due to the COVID-19 pandemic

Educational disruption has been among the most acute issues for Bangladeshi students. Schools and colleges were closed nationwide early in March 2020 and only gradually reopened (with intermittent breaks) through 2021 to 2022. In response to the crisis, the Ministry of Education and related agencies took several initiatives, such as Broadcasting classes through television (Sangsad TV), encouraging the use of mobile apps and social media platforms for lesson dissemination, and developing an abridged curriculum to shorten exam content. This caused substantial learning loss, especially in low-resource areas. While some urban colleges shifted to online learning platforms, the digital divide in rural and marginalized areas left many students without access to educational content. The cumulative effect was a widening learning gap between students from different socioeconomic backgrounds.

The national curriculum was shortened or delayed for several years (2020–2023) in the Secondary School Certificate Examination (SSC) and Higher Secondary Certificate Examination (HSC). Perhaps more dramatically, for the first time in Bangladesh's history, the Government implemented “auto-promotion” in its

Higher Secondary Certificate Examination in 2020. All HSC candidates (12th grade) in the 2020 batch were passed without taking exams (The Daily Star, Sep 08, 2024). In 2021 and 2022, exams were held but on only six subjects (2021) or 45 marks instead of full papers (2022) (The Daily Star, Sep 08, 2024). HSC 2023 also followed a shortened syllabus, but in 2024, the government again cancelled the exam entirely after taking the examination on a few subjects, granting another automatic pass to students. Even secondary-level SSC exams saw syllabus cuts and reliance on internal marks.

Below is Table 2.1 summarizing the number of students at the HSC level in Bangladesh (approximate figures):

Table 2.1:

The number of students at the HSC level in Bangladesh (approximate figures)

Year	Number of HSC Students (Public & Private)
2020	1.3 million (auto-pass year)
2021	1.2 million (shortened syllabus & reduced marks)
2022	1.2 million(shortened syllabus & reduced marks)
2023	1.3 million(shortened syllabus)
2024	1.3 million (shortened syllabus & auto-pass year)

Source: Data compiled by the author from Bangladesh Bureau of Educational Information and Statistics [BANBEIS] and media reports.

These changes eased immediate exam anxiety but also created uncertainty and resentment: many students felt unprepared or deprived of the chance to prove themselves. "The uncertainty and constant changes in the government's decision-making process have taken a toll on our mental well-being, causing significant stress and emotional strain. The impact of this decision extends beyond just academic concerns, affecting future opportunities of studying abroad," a depressing feeling of an HSC candidate in 2024 (The Daily Star, Sep 08, 2024). The constant shifts in policy (planning an exam for one month, cancelling it the next) caused

stress and confusion among students and parents alike. Academicians warn that these irregularities may undermine students' confidence and the credibility of Bangladeshi credentials in the long term. In higher education, university admissions were disrupted similarly. Overall, the educational system's pandemic response, from extended closures to truncated exams, significantly impacted students' academic progress and mental well-being.

2.3 Present Statistics of HSC Students in Bangladesh

According to the survey of Bangladesh Education Statistics (2023) by Bangladesh Bureau of Educational Information and Statistics (BANBEIS), Bangladesh has roughly 20,383,060 students from pre-primary through tertiary levels, among whom 50.52% of students are female. In 2023, the total number of students enrolled at the Higher Secondary Certificate (HSC) level, including general education and equivalent Madrasah education (Alim level) and other equivalents, was substantial across Bangladesh. Within the general stream, approximately 17.02% of total college enrolment belonged to intermediate (HSC-level) colleges, which translates to around 2,624,694 students. Additionally, 270,344 students were enrolled in Alim Madrasahs, and 556,655 students were enrolled in vocational and other institutions, which are equivalent to the HSC level. Combined, this results in nearly 3.5 million students studying at the HSC or equivalent level nationwide.

Table 2.2:

Total enrolment of students in the HSC level and distribution by gender

Total Number of Students in Higher Secondary Level (2023)			
Education Type	Total Students	Female (%)	Male (%)
HSC (General Stream – Colleges)	2,624,694	52.55%	47.45%
HSC/Alim (Madrasah Equivalent)	270,344	54.74%	45.26%

HSC (Vocational, Technical & others)	556,655	29.58%	70.42%
English Medium & others	16,738	58.13%	41.87%
Combined Total	3,468,431	48.75%	51.25%

Source: Approximated from ‘Bangladesh Education Statistics 2023’ by BANBEIS, compiled by the author

Gender distribution shows a strong presence of female students, 52.55% of total college-level students were girls, while Alim Madrasahs reported 54.74% female enrolment. This indicates a balanced or slightly female-dominant gender parity at the HSC level, reflecting positive trends in girls’ access to post-secondary education. In terms of location, educational access remains uneven. HSC students in the general stream are predominantly urban-based, as most institutions offering HSC education (especially colleges) are situated in urban centers. Bangladesh Education Statistics 2023 reveals that 53.87% of institutions are located in rural areas, but a majority (73.72%) of students reside in urban areas, indicating an urban concentration of enrolment. In the overall distribution of the student population, only 26.28% live in rural areas.

Table 2.3:

Total number of students in HSC level, GER, NER, Dropout rate, and Completion rate for the consecutive five years (2019-2023)

Higher Secondary Level (Five-year Assessment 2019-2023)					
Years	2023	2022	2021	2020	2019
Total no. of Students	912680	871527	834300	829750	781447
Gross Enrolment Rate (GER)	57.20	47.70	48.79	48.39	47.32
Net Enrolment Rate (NER)	51.90	44.42	40.54	36.40	35.81

Dropout rate	21.51	22.72	21.14	21.16	18.55
Completion rate	78.49	77.28	78.86	78.84	81.45

Source: compiled by the author from ‘Bangladesh Education Statistics 2023 ’ by BANBEIS

However, the research concentrated solely on general stream HSC-level students from government colleges in Bangladesh. From Table 2.3, we can see that the number of general stream HSC-level students increased in five consecutive years from 2019 to 2023, which actually supports the presence of ‘demographic dividend’ in Bangladesh. Age-wise, the majority of HSC students are between 16 and 18 years old. The steady rise in Gross Enrolment Rate (GER) from 47.32% in 2019 to 57.20% in 2023 and in Net Enrolment Rate (NER) from 35.81% to 51.90% indicates a substantial improvement in participation of the eligible age group (typically 16–17 years) at the higher secondary level. The dropout rate of HSC-level students was 18.55% in 2019, which was found to be accelerated in the consecutive three-year period from 2020 to 2022. It indicates that the dropout rate may be due to the COVID-19 pandemic situation all over the country. However, it declined to 21.51% in the year 2023 with respect to 22.72% in 2022. If we concentrate on the enrollment rates of pre-primary and primary education in Bangladesh, the recent statistics show that gross enrollment is very high, approximately 97%, though secondary enrollment drops off to around 59% (South Asian Institute for Social Transformation [SAIST], 2023). Dropout rates are correspondingly higher at the secondary level, approximately 37% as of the BANBEIS Report 2022, which ultimately affects the enrollment rate at the higher secondary level.

In short, despite the sheer size and distribution, any issues like pandemic disruptions or prolonged disturbance in learning can affect the mental well-being of a large number of young people, which may cause an increased dropout from educational institutions.

2.4 Present Conditions of Bangladeshi students with the prevalence of depression and anxiety

In Bangladesh, where economic disparities are apparent, households with greater wealth are able to provide more support for their children's education, resulting in increased access to quality institutions and resources. On the other hand, less wealthy families find it challenging to cover the school expenses, which leads to disparities in the inclusivity and quality of education. Research shows that the cost of schooling might account for almost 10% of a family's monthly income, placing a heavy financial burden on households (South Asian Institute for Social Transformation [SAIST], 2023). The Socio-economic and Demographic Survey Report, 2023 (conducted by BBS) reveals that the rate of students who did not return to educational institutions after the Corona pandemic is 2.24%, and 18.87% of the total population (aged 15-24 years) is not engaged in any Education, Employment or Training (NEET- an SDG indicator), signaling that many youths are idle or unemployed. Household income sources have been disrupted in 2023, and a majority (73.8%) of affected families reported financial stress (rising living costs, job loss, business closure, etc.). These economic realities mean many students must cope with financial anxiety at home. A study that included 71 different countries with varying income levels identified that Chronic School Absenteeism (CSA) is linked to peer victimization, insufficient peer support, loneliness, increased anxiety, obesity, sedentary behavior, and significant food insecurity (Rahman et al., 2023).

In case of changed lifestyle patterns in the post-pandemic period, many pandemic-era lifestyle habits persist among students. Digital engagement remains high, with about 44.5% of individuals (all ages) now using the internet in 2023, compared to 6.7% in 2013 (BBS, 2023). This translates into most adolescents spending much of their free time online. Many students report continuing irregular sleep schedules and reduced physical activity compared to the pre-pandemic period. Screen time remains elevated, surveys indicate that over a quarter of teens still spend more than 5 hours a day on devices (Ferdous et al., 2024). On the other hand, some healthier routines emerged, such as roughly 80% of students now report eating breakfast regularly (up from 76% pre-COVID), possibly due to increased family time (Ferdous et al., 2024). However, the present lifestyle of students is a blend of pre-COVID and pandemic patterns, with increased internet usage, irregular

sleeping behavior, evolving dietary habits, and a sedentary lifestyle, all of which continue to influence their mental health.

During the pandemic, survey data indicated a dramatic rise in loneliness and isolation among adolescents (Hossain et al., 2022). Currently, a multi-country WHO survey (including Bangladesh) reported that young people are disproportionately at risk for suicidal and self-harm behaviors after COVID (WHO, 2022), implying that social support is inadequate. Overall, the social support network for students is more diffuse: peer support structures have shifted to online, and parents have less bandwidth to provide emotional support. This fragmentation of social capital may leave some students feeling unsupported, contributing to ongoing anxiety.

Multiple studies documented that depression and anxiety soared among Bangladeshi students during COVID-19. Globally, the WHO reported a 25% increase in anxiety and depression prevalence in the first pandemic year (WHO, 2022). In Bangladesh, surveys found even higher rates. For example, one study of university students during lockdown found that more than half were clinically depressed or anxious (Hossain et al., 2022). Among secondary and higher-secondary students, prevalence estimates are similarly alarming. A 2023 national study of 1,523 university entrance examinees reported 53.8% with depressive symptoms and 33.2% with anxiety (Abdullah et al., 2024). These figures far exceed pre-pandemic norms (about 30.5% depression and 16.4% anxiety in adolescents) (Moonajilin et al., 2020). Meta-analyses concur that nearly half of Bangladeshi youths experienced mental health problems during COVID-19 (Hosen et al., 2021). Gender differences were noted in some studies (e.g., male students showing slightly higher rates in one sample (Abdullah et al., 2024), but all indicate pervasive distress. Key risk factors during the pandemic included poor sleep, loss of family income, and being infected or having a loved one infected (Abdullah et al., 2024). A meta-analysis on 29 studies (80,979 youth) showed that the global prevalence of clinically increased child and adolescent depression and anxiety was 25.2% and 20.5%, respectively (Racine et al., 2021). In Bangladesh, where mental health services are limited, only about 0.7 psychiatrists and 0.04 psychologists per 100,000 population (among the lowest in Asia); many students had little support when symptoms

emerged (WHO, 2022). This gap means many students with depression or anxiety receive little professional help. Similarly, ongoing monitoring by WHO and UNICEF warns that the mental health fallout of COVID is “just the tip of the iceberg,” which is likely to have long-term effects (WHO, 2022). In such a situation, preliminary data imply that post-pandemic prevalence of depression and anxiety among Bangladeshi students remains high, comparable to or even exceeding the peak pandemic period (Abdullah et al., 2024). These findings underscore that COVID-19 was not only a physical health crisis but also a mental health crisis for students.

2.5 Conclusion

Pandemic conditions like isolation, fear, and uncertainty created an “exceptionally high” level of psychological distress in young people worldwide. During the pandemic situation, Bangladeshi students are affected by economic adversity due to loss of family income or job, and most of them are affected by irregular lifestyle patterns associated with the long-lasting learning gap. These actually contribute to the post-pandemic long-term depression and anxiety disorders among the students. Adolescence is a time of emotional, physical, and mental growth. In the midst of this transformational period, an estimated 30% of children aged 12 to 17 are more prone to depressive symptoms (Dolle et al., 2012). Without targeted interventions (expanded counseling, stress management programs, financial aid, etc.), these elevated rates may endure or worsen. So, this context of heightened prevalence of depression and anxiety during COVID-19 sets the stage for examining the lingering post-pandemic situation among the students of the HSC level in Bangladesh.

CHAPTER THREE: LITERATURE REVIEW

3.1 Introduction

A thorough review of existing literature is crucial for understanding the theoretical and empirical foundations of any research study. This chapter critically examines previous studies, relevant theories, and key findings that offer insights into the factors influencing the Depressive Symptoms and Anxiety Disorder of Higher Secondary Students of Bangladesh after COVID-19. The objective is to identify central themes, emerging trends, and gaps in the literature, thereby establishing a conceptual framework for the study.

3.2 Effects of COVID-19 on Students' Mental Health (Depression and Anxiety) and Social Capital

The World Health Organization defines mental health as “a state of well-being in which the individual realizes his or her abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to contribute to his or her community.” Determinants of mental health include social, psychological, and biological factors that affect a person's mental health (WHO, 2018). On the other hand, in contrast to mental health, psychological distress is defined as a state of emotional distress or suffering characterized by symptoms of depression (Mirowsky & Ross, 2002). Psychological stress can arise when individuals' environmental demands strain or exceed their adaptive capacity. Poor mental health can be linked to fast social change, social exclusion, unhealthy lifestyles, and physical illness (WHO, 2018).

Pitas and Ehmer (2020) demonstrate that communities with high social capital respond more effectively than those with low levels of social capital. During the long-term pandemic, the ongoing socio-cultural limitations create a risk to students' mental health and well-being. Holm-Hadulla et al. (2021)^[1] conducted a

^[1] Gewalt et al. (2022). “Effects of the COVID-19 pandemic on university students' physical health, mental health, and learning, a cross-sectional study including 917 students from eight universities in Germany.”

study on university students in Heidelberg, Germany, where they identified that pandemic-related social restrictions caused a severe reduction in well-being in almost three-quarters of students. In a population-based study, Molarius et al. (2009) ^[1] found that little or no social support and significant life events were strongly and independently associated with mental health symptoms.

Moreover, in COVID-19-specific concerns, stressors like social distancing, physical isolation, lack of interaction, and emotional support, social distancing as well as social distancing and physical isolation were identified as considerable stressors for students, which have been negatively linked to mental health trajectories (Elmer et al., 2020).

It is possible that social distancing had a detrimental effect on the sense of belonging. Emotional and cognitive patterns are found to be impacted by belonging in a variety of significant ways. It is often satisfied through friendships and social activities. The lack of attachment is linked to numerous adverse effects on health, adaptation, and well-being. For students' academic success, the sense of belonging is an important factor. A survey of in-depth experiences of college students regarding the COVID-19 situation described their feelings as an "emotional rollercoaster," accepting a "new normal," and experiencing "growth under pressure" (Cahapay, 2020). A brief analysis of the data available on the COVID-19 virus's impact on mental health showed that it mainly had adverse psychological effects, such as symptoms of post-traumatic stress disorder, like boredom, frustration, and fear of infection (Brooks et al., 2020).

A study involving 7,709 school-aged children found that individual-level school social capital was strongly associated with reduced depression and improved quality of life. The impact varied by educational stage, with junior high students showing a more pronounced inverse relationship between school social capital and depression (Mori *et al.*, 2022). A cross-national study involving 4,228 college students across 12 countries confirmed that lower cognitive and behavioral social capital was associated with increased depressive symptoms (Backhaus et al., 2020).

The high levels of social capital have been a protective factor for mental health by preventing not only depression but also anxiety and by favoring healthy lifestyles such as regular physical activity, a balanced diet, and less substance use (Sotaquirá et al., 2022). Accordingly, the pandemic and its related policies, such as social distancing and nationwide lockdowns, were recognized as stressors that might have a detrimental impact on students' mental health.

3.3 Effects of COVID-19 on Students' Mental Health (Depression and Anxiety) and Lifestyle Patterns

The COVID-19 pandemic is primarily a threat to both short-term and long-term physical and mental health. According to Campbell et al. (2022), a Canadian mental health survey during the COVID-19 pandemic showed that almost two-thirds of the respondents aged 15 to 24 reported a negative impact on their mental health, while just over one-third of those aged 65 and older reported a negative impact on their mental health since physical distancing began. They also mentioned the UK's data from the National Union of Students, where half of the students were suffering from worse mental health issues, and the COVID-19 pandemic has added a layer of "chronic and unpredictable" stress, creating the perfect conditions for a mental health crisis.

Experiences from 917 students from eight German universities revealed that the pandemic had a negative impact on students' academic performance, lifestyle, mental health, and social well-being in addition to their physical health (Gewalt et al., 2022). According to their findings, maintaining an active lifestyle at home through aerobic exercises, bodyweight training, and other activities can lessen the negative mental and physical effects of COVID-19 regulations. Gewalt et al. (2022) also reported on a population-based study conducted in Sweden that found a correlation between mental health symptoms and physical inactivity. Stress and physical inactivity create a vicious cycle that could lead to anxiety and depression. Physical and mental health are thus negatively impacted by inadequate physical activity.

A study on 217 U.S. undergraduate students showed that students who were more sedentary during the COVID-19 situation were reported to have more symptoms of depression and anxiety compared to previous academic semesters and subsequent academic breaks (Huckins et al., 2020). Students with depressive symptoms may experience difficulty sleeping, changes in weight, and an increased likelihood of suicidal thoughts, in addition to problems with academic learning (Cassady et al., 2019).

Academic stress, social isolation, and lack of sleep are significant contributors to depression among students, often triggered by irregular lifestyle patterns (Perera et al., 2023). During the COVID-19 pandemic, young people aged 21 to 40 were found to be psychologically more vulnerable than older people, according to an online survey conducted among Chinese citizens (Ahmed et al., 2020). A cross-sectional web survey of 476 university students in Bangladesh during the COVID-19 period, conducted by Islam et al. (2020), reported that depression and anxiety were prevalent among students with no physical exercise and those who considered themselves lagging behind others in terms of academic activities. In reference to the lifestyle patterns of young students, Sotaquirá et al. (2022) showed that moderate to vigorous physical exercise can be protective, as nearly half of the participants who only participated in low-intensity activities, like walking, reported having depressive symptoms. They also demonstrated how important sleep is in preserving regular bodily processes. Thus, sleep deprivation negatively impacts the neurocognitive and emotional well-being of young people, which can exacerbate academic difficulties. Therefore, it is crucial to emphasize the value of leading a healthy lifestyle because it may help ward off the onset of depression and anxiety.

3.4 Effects of COVID-19 on Students' Mental Health (Depression and Anxiety) and Grades and Learning (Academic Achievements)

In early 2020, the enforcement of social distancing measures, temporary lockdowns, and a shift to distance learning profoundly altered the daily routines and lifestyles of students throughout the world. Due to nationwide lockdowns, governments

closed educational institutions temporarily to help contain the spread of the COVID-19 pandemic. These nationwide closures were impacting almost 70% of the world's student population (UNESCO, 2020). The prohibition of in-person lectures and exams, along with the closure of school facilities such as playgrounds, libraries, and canteens, had a profound impact on young adults, particularly school-going students, often leading to a more isolated, inactive, passive, and potentially more stressful lifestyle.

Moreover, the COVID-19 situation triggered educational institutions to switch to an online learning system. According to Daly (2021), during the COVID-19 pandemic in Africa, due to the economic downturn and challenges associated with distance learning, students' dropout rates in primary and secondary schools increased severely. Acheampong (2023) conducted a study in the University of Ghana Business School, where students were asked to compare their learning capacities in face-to-face versus online classes. Most participants (about 70%) agreed that they had a lack of motivation to study or meet deadlines in online classes. Moreover, low self-discipline, lack of understanding of courses, lack of classmate interaction, and little to no group learning hampered their academic grades and performance. Recent research by Quintiliani et al. (2021) found that stress from distance learning during the pandemic significantly reduced students' learning and overall well-being. The shift to online learning contributed to mental health challenges by increasing social media usage, which led to higher rates of depression (75%) and anxiety (60%) among students. Financial concerns and lack of physical activity further exacerbated these issues (Siddik et al., 2023). On the other hand, students who are facing learning challenges and depression simultaneously have a lack of interest in school, difficulty in paying attention or concentrating on tasks, and struggle to engage in positive academic behaviors such as attending class and studying (Gaspar de Matos et al., 2008)^[2]. According to the American Psychiatric Association (2000), "The impact of depression on college students covers several

^[2] Cassady et al. (2019). Predicting Student Depression With Measures of General and Academic Anxieties.

domains of effective functioning and can lead to significant negative outcomes both academically and psychologically.”

The situation before and after the onset of COVID-19; several students from the HSC level were absent from classes even in the examination, and showed a remarkable downfall in their academic performances as well as academic results after the COVID-19 pandemic. Most of them had previous records of performing actively in class activities and other extra-curricular activities at the college, with better academic results. However, after COVID-19, they were facing difficulty in class activities or concentrating on tasks and exams, as well as a lack of interest in studying at home. Data indicates that the dropout rate of HSC-level students was 18.55% in 2019, which was found to be accelerated in the consecutive three-year period from 2020 (21.16%) to 2022 (22.72%) (BES, 2023).

3.5 Theoretical discussion on Social capital, Lifestyle pattern, Academic achievements, and Mental health (Depression and Anxiety)

3.5.1 Concepts of Social Capital and Its Application in Education

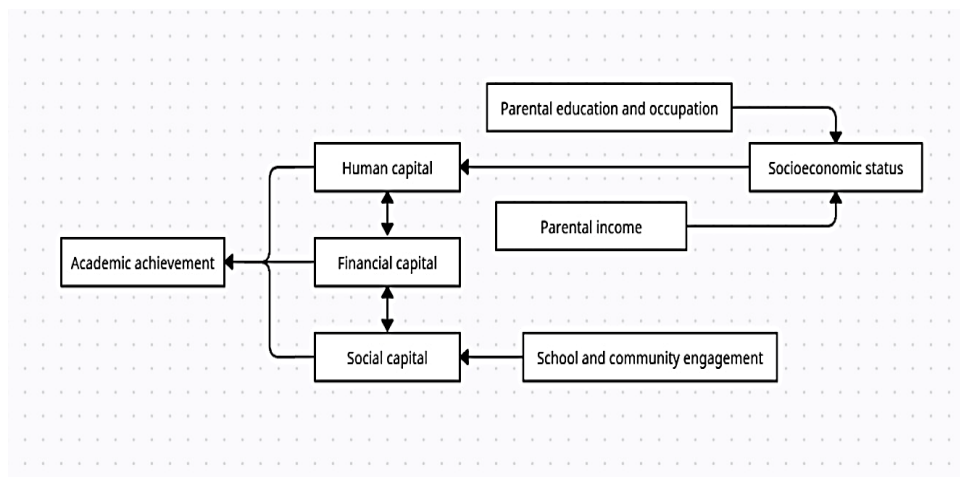
The concept of social capital has been widely applied in disciplines such as sociology, education, public health, economics, organizational behavior, and political science. Social capital has been defined as the degree of social cohesion within communities or as “a resource for action” (Coleman, 1988, p. 95). It encompasses such features of social organization as civic participation, norms of reciprocity, trust, and social processes that establish norms and facilitate cooperation for mutual benefit (Kawachi et al., 1997; WHO, 1998). Earlier studies in the later part of the twentieth century (Coleman 1988, 1990; Bourdieu & Wacquant, 1992; Putnam, 2000) suggest that social capital creates positive social environments, which impact socioeconomic decisions made by individuals in society.

The earliest attempt to apply social capital to education was made by Coleman (1988) in the analysis of high school dropouts. In the 1990s, several studies looked at the relationship between social capital and education. There then

emerged compelling shreds of evidence that social capital plays a significant role in promoting academic achievement (Plagens, 2011; Sun 1998, 1999; McNeal, 1999; Valenzuela & Dornbusch, 1994) and enhancing the educational aspiration of children and youths (Pribesh & Downey, 1999; Muller & Ellison, 2001). The differences in students' academic success were attributed to differences in their levels of social capital produced by their family social networks. Putnam (2000) argued that child and youth development were shaped by social capital in school. Earlier studies suggest that social capital within children's families, schools, peer groups, and the community supports educational success in the form of the disciplinary and academic climate at school and also creates cultural etiquette and values that motivate students to achieve higher goals (Fig. 3.1).

Fig 3.1:

Based on Coleman's (1988) Social Capital Theory on Students' Academic Achievements



(Source: Compiled by the author based on Oyshi et al., 2021)

Other studies have argued that social capital positively affects educational achievement and students' behavior and, in turn, reflected positively in low dropout rates and higher graduation rates (Israel et al., 2001), higher college enrollment (Yan, 1999), higher achievement on tests (Sun 1998, 1999), and greater participation in school and community organizations (Sun 1998, 1999). Oranye et al. (2017) showed that elements of social capital, such as trust, social support, membership of associations, and perceived safety on campus and in the neighborhood are important

aspects of social life that provide unique ways of understanding the life experiences of students, and these conditions affect their academic performance positively. Other studies have also shown that friendship networks and social support from family have positive relationships with educational success and other outcomes such as emotional and physical well-being and employment (Yip et al., 2007; Weil et al., 2012). Previous studies have shown that environmental conditions in the home, school, community, and support from friends can influence students' academic experience (Woolley et al., 2008; Zhang et al., 2008). Dika & Singh (2002) reviewed several articles and found that educational attainment and academic achievement are both positively linked to social capital indicators, where the student, not the parent, is the actor. Participation in organizations in the school and community, the number of close friends attending the same school, and ties with peers are all positively associated with stronger educational aspirations and more significant achievement.

3.5.2 Concepts of Lifestyle Patterns and Their Application in Student Life

Lifestyle is a broad concept that is closely related to various aspects of social life. It encompasses the patterns of behavior, interests, opinions, values, and habits that characterize an individual or group. Wikipedia defines lifestyle as the interests, beliefs, actions, and behavioral orientations of a person, group, or culture. The Austrian psychologist Alfred Adler coined the phrase "style of life" (German: Lebensstil) in his 1929 book *The Case of Miss R.*, and it means "a person's basic character which is actually established early in childhood." In a more general sense, lifestyle has been defined as a "way or style of living" since 1961. A person's lifestyle is a combination of their tangible and intangible characteristics. While intangible factors pertain to an individual's psychological characteristics, such as personal values, preferences, and outlooks, tangible factors are specifically related to demographic variables, i.e., an individual's demographic profile.

According to the Lifestyle Encyclopedia, "In the realm of social science, lifestyle encompasses the array of behaviors, habits, values, and preferences that characterize an individual or a group within a specific cultural and social context.

The study of lifestyle in social science sheds light on the reciprocal influence between personal choices and broader societal structures, contributing to a nuanced understanding of human behavior within the fabric of society.” There are several components of lifestyle patterns, like behavioral patterns, values and beliefs, and consumption behavior, which are influenced by different factors such as socioeconomic status, cultural background, geographical location, etc.

For example, a rural environment must have different lifestyles compared to an urban metropolis. Even in an urban setting, location matters. The neighborhood influences a person's choice of lifestyle because different neighborhoods have varying degrees of wealth and proximity to natural and cultural environments. On the other hand, individuals in rural areas may lead lifestyles closely tied to agriculture and nature, with different patterns of social interaction.

On the other hand, the lifestyle of a student is a distinctive and vibrant stage of life and is characterized by the quest for knowledge, social interaction, and personal development. Exploration, growth, and education are all part of this time. It is essential to maintain a crucial balance between academic activities, personal well-being, and social interactions, and it is a constant struggle that necessitates thoughtful consideration and mindfulness. Students should prioritize their health, make informed choices, and engage in a supportive and encouraging community as they navigate this transformative phase of their lives.

According to the American College of Lifestyle Medicine, to maintain a healthy life, students should follow six key factors: nutrition, physical activity, sleep, stress management, substance use, and social connections. Regular physical activity, better sleep patterns, improved dietary habits, probable caffeine consumption, and decreased feelings of anxiety are generally assumed to be important for high academic performance. Research has shown that these lifestyle factors are profoundly related to the mental health outcomes of students.

Investigation showed that regular exercise is associated with lower levels of stress, anxiety, and depression, as well as improved mood and cognitive function

(Mahindru et al., 2023; Lin & Gao, 2023). A 2023 Portuguese study (Tavares-Almeida et al., 2023) found that among 1447 university students surveyed, high levels of anxiety (66.7%), depression risk (37.3%), and low resilience (24.9%) were prevalent, with the male gender, study time, employment, extracurriculars, and physical exercise being linked to better mental health outcomes, while excessive news consumption, online lecture difficulties, and social isolation were associated with worse psychological indicators. Gender differences in lifestyle choices have been well-documented across various studies, highlighting significant disparities in behaviors related to health and well-being, with women reporting more significant challenges with emotional and mental health (Sánchez-Rojas et al., 2021).^[3] For example, a study conducted among senior high school students in South Korea found that girls exhibited more unhealthy lifestyle behaviors, such as lower physical activity and poorer sleep satisfaction, and were more vulnerable to mental health issues like stress and depression. In contrast, boys were more prone to risky behaviors such as smoking and drinking (Kim et al., 2021).^[3] Overall, evidence supports the positive impact of healthy lifestyle choices on academic performance and mental well-being. Students who, for example, adopt healthier eating habits and engage in regular physical activity tend to experience lower levels of distress and perform better academically (Hoteit et al., 2024; Hammoudi Halat et al., 2023).^[3]

Rajendran et al. (2019) suggest that a healthier lifestyle is positively correlated to academic performance, while a high stress level has a negative influence. Unhealthy lifestyles that children practice have unfavorable consequences on their academic performance. Chiasson and Aubé (2008)^[4] criticized on the fewer number of studies focusing on the impact of lifestyle on student academic achievements. Nonetheless, a poor lifestyle negatively affects the

^[3] Tavares-Almeida et al., (2025). Mental Health and Lifestyle Factors Among Higher Education Students: A Cross-Sectional Study.

^[3] Tavares-Almeida et al., (2025). Mental Health and Lifestyle Factors Among Higher Education Students: A Cross-Sectional Study.

^[4] Rajendran et al. (2019). Understanding the Impact of Lifestyle on the Academic Performance of Middle- and High-School Students.

psychological well-being of adolescents, which can sequentially influence student attendance, attention span, and academic performance (Bandura, 1997).^[4]

3.5.3 Concepts of Mental well-being (depression and anxiety) and its relation to adolescents

Kumar (2024) defines Mental health as a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well, work well, and contribute to their community. It is an integral component of health and well-being that underpins our individual and collective abilities to make decisions, build relationships, and shape the world we live in. Mental health is a fundamental human right. Moreover, it is crucial to personal, community, and socio-economic development.

The WHO constitution states that "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." An important implication of this definition is that mental health is more than just the absence of mental disorders or disabilities.

Therefore, Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the everyday stresses of life, can work productively, and is able to contribute to his or her community. Mental health is essential to our communal and individual capacity as humans to think, feel, engage with one another, earn a livelihood, and derive pleasure from life. On this basis, the promotion, protection, and restoration of mental health is a critical concern for individuals, communities, and cultures globally.

In the broader speculation of mental health definition, depression and anxiety are the most impactful stressors for mental well-being. Depression is a mood disorder characterized by persistent feelings of sadness, hopelessness, and a loss of interest in activities. Anxiety, on the other hand, is a mental health condition marked by excessive worry, fear, and nervousness and often accompanied by physical symptoms like increased heart rate, sweating, or trembling. Depression and anxiety both can significantly affect daily life, including work, study, relationships,

and social activities, because of constant difficulty in concentrating, changes in sleep or appetite, fatigue, and thoughts of death or suicide.

On the other hand, adolescence is the period between 10 and 19 years of age when individuals transition from childhood to adulthood. During this period, substantial physical, psychological, and behavioral changes occur in boys and girls. There is agreement about the considerable differences between children and adolescents in all societies, although the definition and recognition of childhood and adolescence may vary across societies around the world. According to an editorial in *Nature*, 25% of the total global population now belongs to the 10–24 years age group, and addressing their needs is a crucial task (Anjum et al., 2022). Adolescence is a crucial period for developing social and emotional habits that are important for mental well-being. These include learning to control emotions, establishing healthy sleep habits, exercising frequently, and improving interpersonal, coping, and problem-solving abilities. It is crucial to create safe and encouraging environments in the home, at school, and in the larger community in order to foster these habits in adolescents.

According to the fact sheet of WHO's Mental Health of Adolescents (2024), globally, one in seven 10-19-year-olds experiences a mental disorder, accounting for 15% of the global burden of disease in this age group. Depression, anxiety, and behavioral disorders are among the leading causes of illness and disability among adolescents.

Depression, a major contributor to the global burden of diseases, is also one of the leading causes of illness and disability among adolescents. It is a tremendous public health concern that the onset of depressive disorders is reported to occur during the period of adolescence (Costello et al., 2011).^[5] Clayborne et al. (2019) showed that early life depression is associated with poor psychosocial outcomes, including lower social support and lower educational attainment.^[5] They also did a

^[5] Anjum et al., (2019). Investigating the prevalence of and factors associated with depressive symptoms among urban and semi-urban school adolescents in Bangladesh: a pilot study.

systematic review of longitudinal studies, which showed that adolescents suffering from depression are more likely to experience at least one recurrent episode of depression in adulthood.^[5] Thus, adolescent depression is a crucial public health concern because of its high prevalence and recurrence, as it causes greater risks of suicide and other comorbid psychiatric disorders and contributes to the overall disease burden (Stikkelbroek et al., 2016).^[5]

Anxiety disorders, however, are also the most prevalent in this age group and are more common among older than among younger adolescents. It is estimated that 4.4% of 10–14-year-olds and 5.5% of 15–19-year-olds experience an anxiety disorder (WHO, 2024). On the other hand, depression is estimated to occur among 1.4% of adolescents aged 10–14 years and 3.5% of 15–19-year-olds (WHO, 2024). Depression and anxiety share some of the same symptoms, including rapid and unexpected changes in mood.

However, adolescent depressive and anxiety disorders do not receive adequate attention in most cases, leading to the recurrence of depression and anxiety in later adult life. Predictors of depressive disorders among adolescents include genetic and social factors, lifestyle factors, stress, anxiety, and attention deficit hyperactivity disorder. Physical inactivity and screen-based sedentary behavior have increased significantly among adolescents, in both developed and developing countries, which is leading them towards depressive symptoms and anxiety disorders. Sleeplessness and sleep disturbance have been found to be associated with depressed mood among adolescents.

3.6 Tools for Measuring Depression and Anxiety (PHQ-9 and GAD-7): Comparisons with other tools and reasons for use in the survey

There are several major and widely used tools for measuring or assessing depression and anxiety worldwide. The 9-item Patient Health Questionnaire (PHQ-9) and the 7-item Generalized Anxiety Disorder scale (GAD-7) are brief self-report measures, widely used to screen for and gauge the severity of depression and anxiety in clinical and research settings (Lee et al., 2023; Johnson et al., 2019). There are

several other instruments, like the Beck Depression Inventory-II (BDI-II), the Hospital Anxiety and Depression Scale (HADS), the Depression Anxiety Stress Scales–21 (DASS-21), and the Major Depression Inventory (MDI), which are also well-developed and frequently used in assessing depression and anxiety disorders.

3.6.1 Comparison with Other Screening Instruments

Table 3.1 summarizes key characteristics of the PHQ-9, GAD-7, and four other common tools; the Beck Depression Inventory-II (BDI-II), the Hospital Anxiety and Depression Scale (HADS), and the Depression Anxiety Stress Scales–21 (DASS-21).

Table 3.1

Key features of the PHQ-9, GAD-7, BDI-II, HADS, and DASS-21 screening measures

Instrument	Developer (year)	Type & Items	Time Required	Symptoms Assessed	Scoring/Cut-off
PHQ-9	Spitzer <i>et al.</i> (1999)	Self-report, 9 items	2-4 min	Depression	Score 0–27; ≥ 10 for moderate; 5,10,15,20 = mild→severe
GAD-7	Spitzer <i>et al.</i> (2006)	Self-report, 7 items	2-3 min	Generalized Anxiety	Score 0–21; ≥ 10 for moderate; 5,10,15 = mild→severe.
BDI-II	Beck (1996)	Self-report, 21 items	5-10 min	Depression (cognitive and somatic)	Score 0–63; 14–19 = mild, 20–28 moderate, ≥ 29 severe
HADS	Zigmond & Snaith (1983)	Self-report, 14 items (7A + 7D)	5-7 min	Anxiety & Depression (non-somatic)	Each subscale 0–21; ≥ 8 suggests probable case
DASS-21	Lovibond & Lovibond (1995)	Self-report, 21 items (7D + 7A + 7S)	7-10 min	Depression, Anxiety, Stress (3 subscales)	Each 0–21; Severity ranges are defined per scale (normal→extremely severe).

(Source: compiled by the author)

The PHQ-9 was developed by Spitzer, Kroenke, and colleagues (under Pfizer sponsorship) in the late 1990s as the depression module of the PRIME-

MD^[6]/PHQ system (Lee et al., 2023; Kroenke et al., 2001). It consists of nine items corresponding to the DSM-IV^[7] criteria for major depressive disorder. In its initial validation on approximately 6,000 primary-care and obstetrics-gynecology patients, the PHQ-9 showed high internal consistency, strong test–retest reliability, and excellent construct and criterion validity, for example, a score ≥ 10 yielded 88% sensitivity and 88% specificity for major depression (Lee et al., 2023; Kroenke et al., 2001).

Similarly, the GAD-7 (Spitzer et al., 2006) was created using seven items drawn from DSM-IV GAD criteria. Its development involved item-reduction from an original pool of 13 anxiety items, selecting the seven with the highest correlations (Spitzer et al., 2006; Johnson et al., 2019). In the original large primary-care study ($N \approx 2,700$), the GAD-7 demonstrated excellent psychometric properties; “good reliability, as well as criterion, construct, factorial, and procedural validity,” and an optimal cut-off of ≥ 10 yielding approximately 89% sensitivity and 82% specificity for GAD (Spitzer et al., 2006; Johnson et al., 2019). The GAD-7 showed excellent consistency, initial studies reported $\alpha \approx 0.92$ (Johnson et al., 2019), and more recent samples find $\alpha \approx 0.89$ in a study with Bangladeshi University students (Dhira et al., 2021). In short, both instruments were explicitly designed as efficient DSM-based screeners and severity measures, and each has become “a reliable and valid measure” of its target disorder (Lee et al., 2023; Johnson et al., 2019).

On the other hand, unlike the PHQ-9 and GAD-7, the BDI-II (Beck Depression Inventory-II) is longer (21 items) and includes many cognitive-symptom items, but it is copyrighted and typically not free for routine screening, which actually limits its use in the social research setting. The HADS contains both anxiety and depression subscales and omits somatic symptoms like dietary habits or sleeping patterns (intended for medically ill patients only), which further

^[6] Primary Care Evaluation of Mental Disorders (PRIME-MD) is a two-stage instrument designed by Spitzer et al. in 1994 for use in primary care settings to identify and diagnose mental disorders (Spitzer et al., 1999)

^[7] The DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition) is a comprehensive manual used by mental health professionals to diagnose and classify mental disorders.

demonstrates its limitation for use in the classroom setting. However, the DASS-21 includes a separate stress scale in addition to depression and anxiety, but it may not be as sensitive as the PHQ-9 or GAD-7 in some contexts (Peters et al., 2021). In terms of psychometrics, studies generally find that PHQ-9 and BDI-II scores correlate strongly (e.g., $r \approx 0.88$) (Bentley et al., 2021) and both have high reliability. Meta-analyses report that PHQ-9 cut-offs of 8–11 perform similarly to BDI-II in identifying major depression (Ajele & Idemudia, 2025; Bentley et al., 2021). HADS also performs well, factor analyses support its 2-factor structure; mean Cronbach's α is nearly 0.83 for anxiety, and 0.82 for depression, but tends to under-identify somatic depression (Bjelland et al., 2002). In head-to-head comparisons, no instrument is universally superior; for example, one study found PHQ-9's brevity gave it an edge in primary care, while BDI-II's breadth better distinguished severe cases (Bentley et al., 2021; Bjelland et al., 2002). The DASS-21's advantage is covering stress symptoms, but at the cost of slightly more items.

However, the PHQ-9 and GAD-7 have many strengths than other tools, as they are concise, freely available, self-administered, easy to score, and rooted in DSM criteria. They have been repeatedly validated and recommended for routine screening (Kroenke et al., 2001; Johnson et al., 2019). PHQ-9's particular strengths include its use for both diagnosis and severity monitoring, inclusion of a suicidal ideation item, and well-established cutoffs. GAD-7's strengths include its excellent internal consistency and sensitivity to GAD, with growing evidence for detecting other anxiety disorders (Johnson et al., 2019).

3.6.2 Use Across Diverse Populations and Settings

Both the PHQ-9 and GAD-7 have been translated and validated in many languages and cultural contexts. The PHQ-9 is globally ubiquitous, used in general populations, specialty clinics, and large epidemiological surveys. After its initial development in U.S. primary care, it has been “psychometrically examined in diverse populations (e.g., people with chronic disease, the elderly, college students, and adults) and languages” (Lee et al., 2023). It appears in national health surveys worldwide and is validated in adolescents to older adults across continents (Lee et

al., 2023). Evidence shows it generally retains reliability ($\alpha \approx 0.8-0.9$) in these groups (Ajele & Idemudia, 2025; Shaff et al., 2024). However, some studies note partial invariance across ethnic or age groups, suggesting cautious interpretation when used in under-studied subgroups (Shaff et al., 2024; Lee et al., 2023).

The GAD-7 likewise has broad applicability. After the original U.S. primary-care study, it has been validated in specialty settings (psychiatric clinics, obstetrics, substance abuse) and in many countries. For example, it has been tested in Europe, Africa and Asia, among Finnish primary-care patients and Zimbabwean clinics, college students in Portugal and Korea, and adolescents in Ghana (Kigozi G., 2021; Dhira et al., 2021). Studies consistently find a unidimensional anxiety factor with occasional somatic/cognitive distinctions (Johnson et al., 2019) and good internal consistency ($\alpha \geq 0.85$) across cultures (Kigozi, 2021; Dhira et al., 2021). Thus, both tools are generally robust across diverse settings, though, as with any measure, local validation (especially for language translations) is advisable.

In summary, the PHQ-9 and GAD-7 are highly reliable, valid, and widely accepted brief screeners for depression and generalized anxiety disorders. They outperform many longer scales in feasibility and have good psychometric comparability with established instruments (Kroenke et al., 2001; Johnson et al., 2019). Both tools are validated for co-morbidities, as most of the time depression and anxiety overlap, so PHQ-9 and GAD-7 together provide more comprehensive mental health assessments. They are suitable for large-scale surveys and validated across ages, from adolescents and young adults to the aged population.

3.7 Literature gap and conceptual framework

Adolescence is a critical developmental stage marked by significant physical, mental, and behavioral changes. This period, typically between the ages of 10 and 19, is crucial for the development of lifestyle habits and health behaviors (WHO, 2017). Studies have shown that at least 20% of individuals encountered a common mental illness sometime between the ages of 12 and 24, and a higher prevalence was observed in the 18–24 age group than in the 10–17 age group (Anjum et al.,

2021). According to WHO's Special Initiative for Mental Health Situational Assessment in Bangladesh (2020), A 2018-2019 door-to-door prevalence survey of a representative sample of Bangladesh citizens found 18.7% of adults and 12.6% of children to meet criteria for a mental disorder. From them, only an estimated 7.7% receive mental health treatment. The report also marked that, in Bangladesh, the estimated prevalence of depression (2.8%) is higher than in the overall South Asia region (2.2%).

Several factors contribute to the development of depressive symptoms in adolescents aged 15-18 years. These include negative life experiences, gender, genetics, low parental warmth, high levels of maternal aggression, and escalating adolescent-parent conflict (Singh et al., 2017). Perceived alienation by peers, parents, and teachers also predicts an increase in depressive symptoms (Silva et al., 2020). Different authors have researched evidence about the association between social capital and health outcomes among college students worldwide, but this research remains very limited (Morgan & Haglund, 2009; Borges et al., 2010). In Bangladesh, where adolescents make up 22% of the population, few studies have investigated depressive symptoms among this group (Nasreen et al., 2016). However, there have been several studies related to post-COVID effects on students in different corners of the world, including Bangladesh. Most of them are conducted on Graduate or University students; some are on primary-level students. Despite the significance of social capital and lifestyle patterns, there is limited research on their impact on the mental health of young adults, especially Higher Secondary Certificate (HSC) students in Bangladesh and other developing countries. Thus, to cope with the prolonged psychological distress after COVID-19, to maintain this large student population's mental well-being, and to develop actionable recommendations, it is necessary to find out the factors that actually affect the depressive symptoms and anxiety disorders in HSC-level students (15-18 years) in Bangladesh.

Anjum et al. (2021) found that 30.1% of adolescents were suffering from moderate to severe depressive symptoms, with females (60.8%) being significantly

more affected than males (39.2%), where 2,355 adolescents from nine secondary schools in the Dhaka district of Bangladesh participated in the survey. This study showed that sociodemographic factors such as residential settings and family size were significantly associated with depressive symptoms. Moreover, physical inactivity, screen time of more than 2 hours per day, sleep dissatisfaction, and underweight body image perception were also significantly associated with depressive symptoms. A study showed that, during the COVID-19 pandemic in Bangladesh, students in their early twenties are more depressed than other age groups (Islam et al., 2020).

Islam et al. (2020) conducted a cross-sectional web survey on 476 university students in Bangladesh during the COVID-19 period, where they found that more than two-thirds of the students were experiencing mild to severe depression (82.4%) and anxiety (87.7%). Previous research conducted in Bangladesh found that students in higher education were affected by anxiety and depression. For instance, in 2015, Alim et al. surveyed medical students, revealing that over 50% of medical college students experience anxiety (64.8%) and depression (54.3%). In another follow-up study, the prevalence rates of anxiety and depression among university students, excluding first-year students, were 52.2% and 58.1%, respectively (Mamun et al., 2019). Several studies (Billah *et al.*, 2023; Wang, 2024; Monir *et al.*, 2024) found that limited social support systems exacerbated mental health issues as students struggled to cope without in-person connections. Students also reported dissatisfaction with their academic performance, which contributed to stress and anxiety, and the disruption of daily routines and learning environments further intensified these pressures. However, Arusha & Biswas (2020) showed that Bangladeshi students (17-25 years) who lived with family, spent time with parents, had regular sufficient (self-assessed) periods of sleep, and consumed balanced (self-assessed) diets had significantly lower stress, anxiety, and depression. A balanced lifestyle with greater social bonding might help equip youths better to reduce stress, anxiety, and depression during examinations, which could be an avenue for future intervention studies.

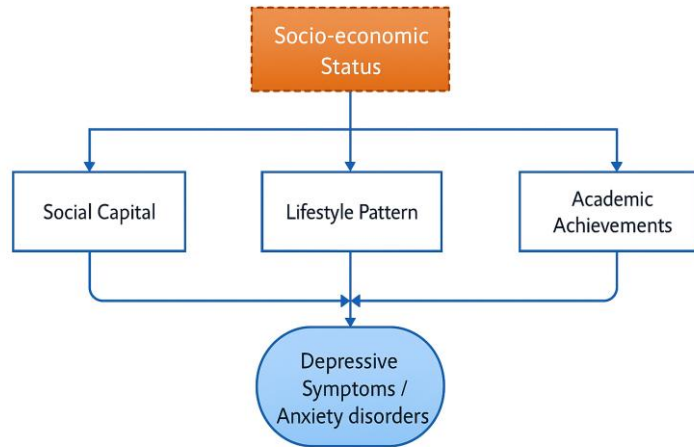
In such a situation, the author develops the conceptual framework based on assumptions and previous literature review as below, where the dependent variables are set to be the measurement of depression and anxiety level through nine questioned Patient Health Questionnaire (PHQ-9, 1999) and seven questioned Generalized Anxiety Disorder (GAD-7, 2006) questionnaire. On the other hand, social capital, lifestyle patterns, and academic achievements will be set as the independent variables, whereas socio-economic status will be set as a moderating variable.

So, the relationships between variables can be depicted as follows,

1. **Social Capital and Depressive Symptoms/Anxiety Disorders:** Higher levels of social capital (supportive relationships, community engagement) are expected to correlate with lower levels of depressive symptoms and anxiety disorders.
2. **Lifestyle Patterns and Depressive Symptoms/Anxiety Disorders:** Healthier lifestyle patterns (regular physical activity, balanced diet, adequate sleep) are anticipated to be associated with reduced depressive symptoms and anxiety disorders.
3. **Academic Achievements and Depressive Symptoms /Anxiety Disorders:** Higher academic achievements may be linked to lower levels of depressive symptoms and anxiety disorders, potentially due to increased self-esteem and future prospects.
4. **Socio-Economic Status as a Moderator:** The impact of social capital, lifestyle patterns, and academic achievements on depressive symptoms and anxiety disorders may be moderated by socio-economic status (SES). For instance, the benefits of social capital may be more pronounced in students from higher SES backgrounds due to better access to resources. Similarly, the benefits of healthy lifestyle patterns may be less pronounced in lower SES students who may lack access to healthy food options or better living spaces.

Fig 3.2:

Conceptual Framework



(source: constructed by the author)

So, the research hypotheses are as follows,

H1: Lower socio-economic status is positively associated with higher levels of depressive symptoms and anxiety disorders among students.

- **Rationale:** Strong socio-economic status provides easy access to services and resources, which can mitigate mental health issues.

H2: Higher levels of social capital are associated with lower levels of depressive symptoms and anxiety disorders.

- **Rationale:** Social support can buffer stress, provide emotional assistance, and enhance coping mechanisms.

H3: Higher academic achievement is associated with lower levels of depressive symptoms and anxiety disorder.

- **Rationale:** Academic success can enhance self-esteem and provide a sense of purpose, mitigating feelings of depression and anxiety.

H4: Healthier lifestyle patterns are associated with lower levels of depressive symptoms and anxiety disorders.

- **Rationale:** Healthy lifestyle choices can improve physical health, which in turn positively impacts mental well-being.

3.8 Research Objectives Alignment

3.8.1 Objective 1: To identify and analyze the factors that contribute to depressive symptoms and anxiety disorders among Higher Secondary Students from the perspective of Social Capital, Lifestyle Patterns, and Academic Achievements.

- The framework directly addresses this objective by illustrating how social capital, lifestyle patterns, and academic achievements are related to mental health outcomes.

3.8.2 Objective 2: To develop actionable recommendations and identify strategies for reconstructing educational practices post-COVID-19 to support students' mental well-being.

- By understanding the relationships depicted in the framework, stakeholders can formulate strategies that enhance social capital, promote healthy lifestyle patterns, and support academic achievements to mitigate mental health issues.

3.9 Conclusion

This chapter provided a comprehensive review of literature examining the psychological impact of COVID-19 on higher secondary students in Bangladesh, emphasizing the interconnected roles of social capital, lifestyle patterns, academic achievements, and socio-economic status in shaping mental health outcomes. The findings consistently revealed that reduced social interaction, disrupted routines, and academic challenges have significantly contributed to increased depressive symptoms and anxiety among adolescents. Drawing from this foundation, the next chapter will operationalize these concepts into a structured research methodology. The conceptual framework and hypotheses developed in this chapter informed the

selection of key variables and the use of PHQ-9 and GAD-7 as measurement tools. These informed the design of a cross-sectional survey and statistical analysis strategy outlined in Chapter 4. Thus, the transition from theoretical understanding to empirical investigation ensures coherence between literature insights and methodological execution, enabling a robust assessment of the mental health status of students in post-COVID Bangladesh.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 Introduction

The study focused on the factors influencing the mental well-being of Higher Secondary Students after COVID-19 in Bangladesh. Therefore, this chapter outlined the research methodology of the study based on the research objective and research questions. In this chapter, we developed the hypotheses through the conceptual framework based on literature reviews and then surveyed them through the questionnaire. There is a detailed explanation of the selection of research methods, the survey instruments used, data collection methods, and the data analysis plan. Finally, this chapter concludes with an acknowledgement of methodological limitations before proceeding with the data analysis.

4.2 Research Objective and Research Questions

This study aims to investigate the factors that influence depressive symptoms and anxiety disorder among HSC-level college students in Bangladesh. So, we developed the following research objectives and research questions based on our literature reviews and previous research.

4.2.1 Research Objective

1. To identify and analyze the factors that contribute to depressive symptoms and anxiety disorders among Higher Secondary Students.
2. To develop actionable recommendations and to identify strategies for reconstructing educational practices post-COVID-19 to support students' mental well-being.

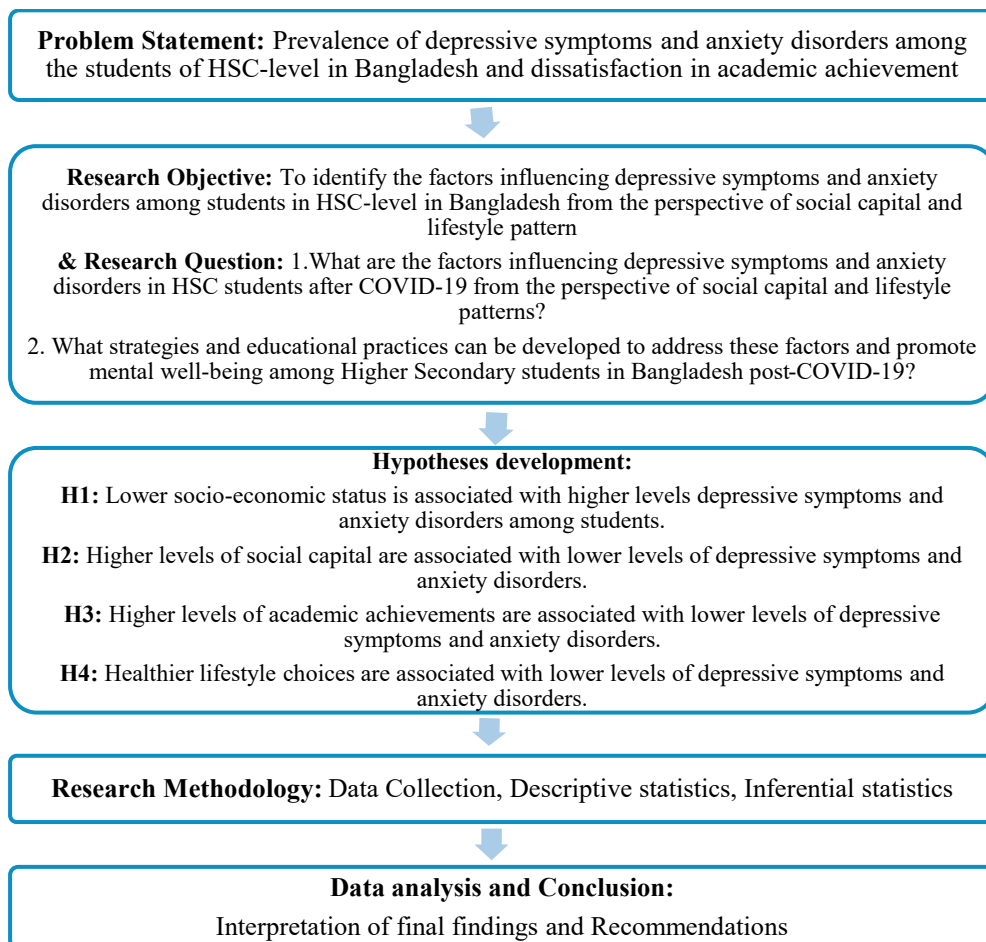
4.2.2 Research Questions

3. What are the factors influencing depressive symptoms and anxiety disorders in HSC students after COVID-19?

4. What strategies and educational practices can be developed to address these factors and promote mental well-being among Higher Secondary students in Bangladesh post-COVID-19?

4.3 Research flow

Depending on the discussion of the background study and the gap in existing literature, the figure below outlines the research flow to reach the identified objective.



4.4 Development of Hypotheses and Analytical Framework

The hypotheses for this study were formulated based on the conceptual framework derived from an extensive review of literature concerning the post-COVID-19 mental health status of higher secondary students in Bangladesh. The framework integrates key dimensions, including demographic factors, social capital, lifestyle

patterns, and academic performance, all of which are expected to influence depressive symptoms and anxiety disorders, measured through validated psychological tools (PHQ-9 and GAD-7).

4.4.1 Moderating variable: Socio-economic Status

Along with demographic background (e.g., age, gender, etc.), socio-economic status has long been recognized as a foundational determinant of mental health outcomes. Socio-economic disadvantages may heighten vulnerability to psychological distress due to limited access to support resources and opportunities.

4.4.2 Independent variables

Social Capital, which encompasses interpersonal relationships, trust, and community engagement, is hypothesized to serve as a buffer against mental health challenges by fostering emotional support and resilience.

Academic Achievements are included, given the significant academic disruptions caused by the pandemic. Poor performance or stress related to academic setbacks may contribute to increased levels of anxiety and depression.

Lifestyle Patterns, such as sleep habits, physical activity, and screen time, are considered crucial behavioral factors influencing mental health. Unhealthy lifestyle choices during and after the pandemic may exacerbate depressive and anxious symptoms.

4.4.3 Dependent variables; Depressive symptoms and Anxiety Disorders

Kumar (2024) defines Mental health as a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well, work well, and contribute to their community. In the broader speculation of mental health definition, depression and anxiety are the most impactful stressors for mental well-being. Depression is a mood disorder characterized by persistent feelings of sadness, hopelessness, and a loss of interest in activities. Anxiety, on the other hand, is a

mental health condition marked by excessive worry, fear, and nervousness and often accompanied by physical symptoms like increased heart rate, sweating, or trembling. Depression and anxiety both can significantly affect daily life, including work, study, relationships, and social activities, because of constant difficulty in concentrating, changes in sleep or appetite, fatigue, and thoughts of death or suicide.

Accordingly, the following hypotheses are proposed:

H1: Lower socio-economic status is associated with higher levels of depressive symptoms and anxiety disorders among students.

Socio-economic disadvantage is a well-documented risk factor for poor mental health among adolescents. Financial strain, limited access to resources, and increased exposure to stressful environments can significantly contribute to psychological distress (Reiss, 2013). During the COVID-19 pandemic, socio-economic disparities were further exacerbated, impacting the mental health of students across the globe (Loades et al., 2020).

H2: Higher levels of social capital are associated with lower levels of depressive symptoms and anxiety disorders.

Social capital—measured through perceived social support, peer and teacher relationships, and family cohesion—has been shown to play a protective role in mental health. Adolescents with stronger social networks and supportive environments tend to report fewer depressive and anxiety symptoms (Kawachi & Berkman, 2001). In the context of post-COVID-19 recovery, rebuilding these support structures is crucial for psychological well-being (Borgonovi & Andrieu, 2020).

H3: Higher academic achievement is associated with lower levels of depressive symptoms and anxiety disorders.

Academic success can enhance students' self-esteem and sense of control, thereby reducing the risk of mental health disorders (Nguyen et al., 2013). Conversely, poor academic performance and academic-related stress, especially during disruptions caused by the pandemic, have been associated with elevated symptoms of depression and anxiety (Lee, 2020).

H4: Healthier lifestyle patterns are associated with lower levels of depressive symptoms and anxiety disorders.

Lifestyle behaviors, including sleep quality, physical activity, screen time, and substance use, are critical determinants of adolescent mental health. Regular physical activity and adequate sleep have been shown to reduce depressive and anxiety symptoms, while excessive screen time and substance use have the opposite effect (Zink et al., 2020; Janssen et al., 2020). These lifestyle factors became particularly relevant during and after the COVID-19 pandemic, when daily routines were significantly disrupted.

4.4.4 Analytical Framework

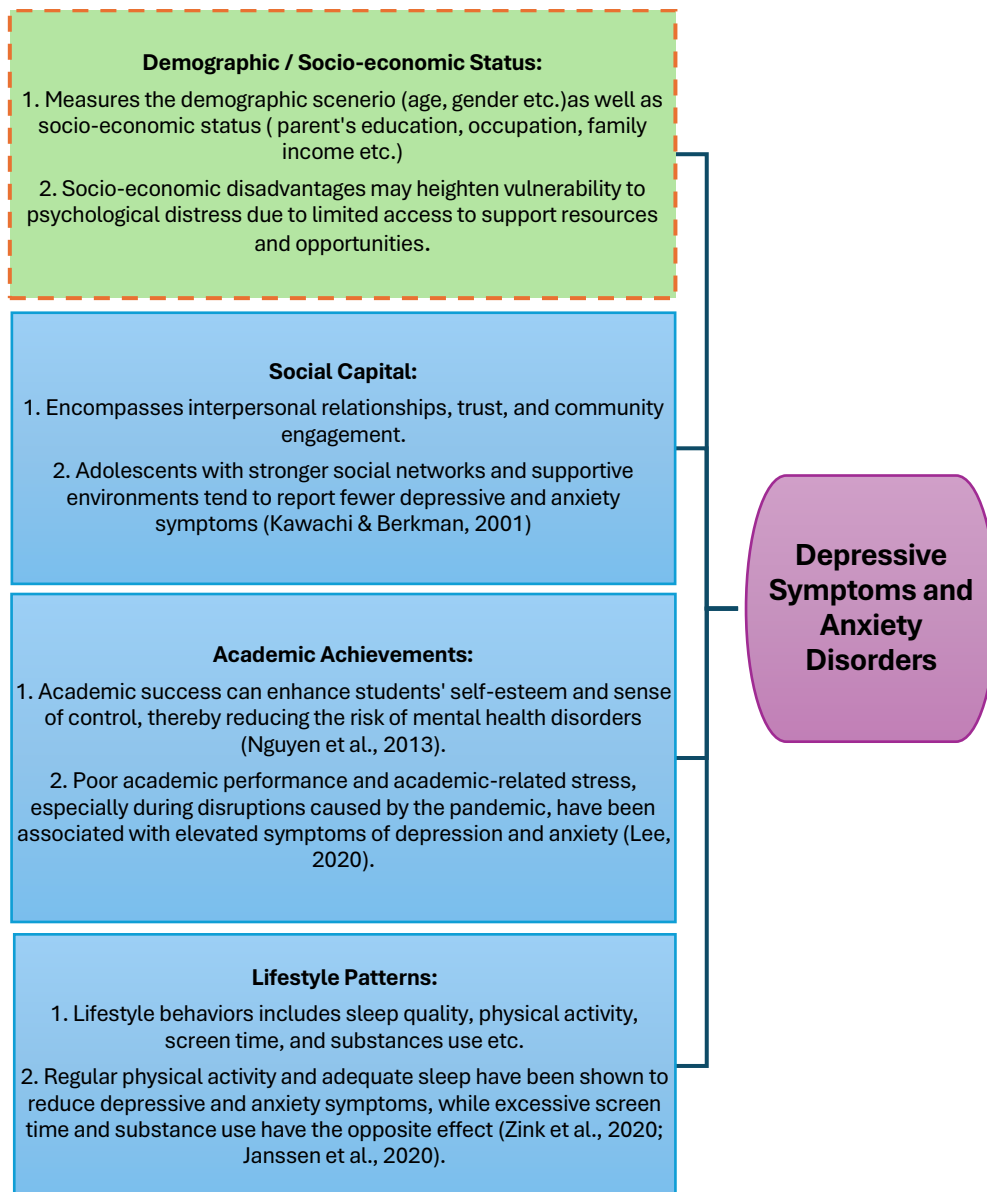
The analytical framework of this study is structured to examine the multifaceted influences on depressive symptoms and anxiety disorders among Higher Secondary (HSC-level) students in Bangladesh following the COVID-19 pandemic. Grounded in a comprehensive literature review, the framework posits that demographic and socioeconomic variables act as moderating factors, while social capital, academic achievement, and lifestyle patterns function as independent variables. These predictors are hypothesized to affect the mental health outcomes, depressive symptoms and anxiety disorders, which are measured by using validated tools (PHQ-9 and GAD-7).

Social capital encompasses peer and teacher relationships, family support, and community engagement, which is expected to buffer psychological distress. Academic achievement is analyzed for its impact on student self-esteem and perceived control, whereas lifestyle factors such as sleep, physical activity, and

screen time are viewed as behavioral determinants of mental health. Socioeconomic status moderates these relationships by influencing access to resources and support systems. This framework guides hypothesis formulation and statistical modeling (including regression analysis), offering a systematic approach to identify key mental health determinants among adolescents in the post-pandemic context.

Fig 4.1:

Analytical framework



(Source: Constructed by the author)

4.5 Research Methods

4.5.1 Data Collection Method

The study employed a cross-sectional survey design to analyze the relationship between depressive symptoms, anxiety disorders, and various independent variables such as socio-economic status, social capital, academic performance, and lifestyle patterns among higher secondary students aged 15-18 years in both urban and rural educational institutions. This design is chosen to provide a snapshot of the prevalence and factors associated with depressive symptoms and anxiety disorder in this population at a specific point in time. The research findings will provide insight into the phenomenon during a particular period rather than demonstrate changes over time, as in a longitudinal study.

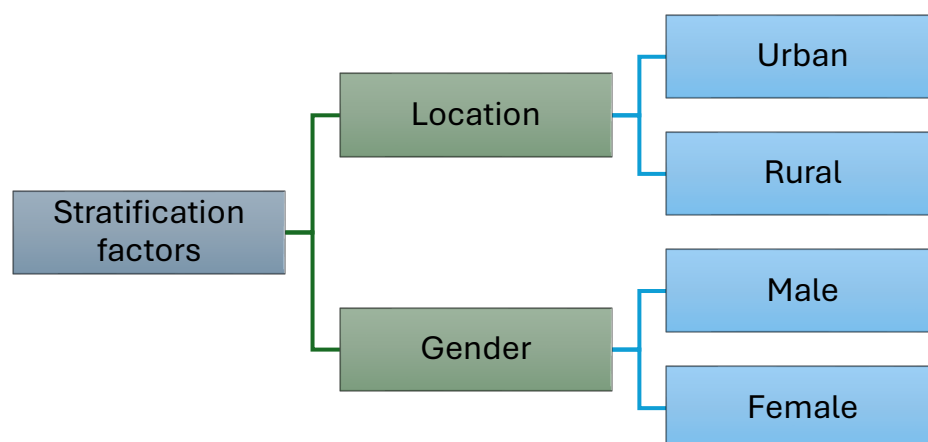
4.5.2 Sampling Technique

A stratified random sampling technique was used to ensure representation from both urban and rural areas. The sampling was divided into two strata based on location (urban and rural) and gender, and within each stratum, colleges were randomly selected.

The figure 4.2 below reflects the stratification of the sample:

Fig 4.2:

Sample stratification factors



(Source: Constructed by the author)

4.5.3 Target Population and Sample Size Determination

The target population was selected from the higher secondary students (Grades 11 and 12) aged 15-18 years from different urban and rural colleges. The urban area covers the colleges located in Division/Metropolitan cities like Dhaka, Chottogram, etc., while the rural area covers the colleges situated in District/Upazilla/Rural regions.

As the stratified random sampling technique was used and data collection was specifically through an online survey, a sample size of approximately 200 participants was targeted.

4.5.4 Conducting the Survey through a Questionnaire

The data was collected using a structured, self-administered online questionnaire designed for the survey to collect responses from the participants. The survey questionnaire was translated into both English and Bengali so that it would be easier for the participants to understand the meaning of the questionnaire. The online survey was conducted using Google Forms, and being present in the classroom setting, the author also used different social media and online communication platforms such as Facebook, WhatsApp, Messenger, etc., to promote the survey among the college students. The questionnaire comprises the contents and numbers of questions asked as shown in the following table 4.1.

Table 4.1

The contents of the survey questionnaire

Contents	Questions asked	Total Questions
Demographic Status (Section 1)	Age, Sex, Parental education level, Parents' occupation, household income, area of residence/college, etc. (8 questions)	8 questions
Social Capital (Section 2)	Social support, relationship with peers and teachers, family	6 questions

	bonding, and involvement in community activities, etc. (6 questions)	
Academic Achievements (Section 3)	Academic grades and Board Examination Result, mode of study during the pandemic, regular study time, perception on academic stress, etc. (Grades in different exams and 6 questions)	Academic Grades at different levels + 6 questions
Lifestyle Patterns (Section 4)	Sleep patterns, physical activity, screen time, and substance use (if any). (7 questions)	7 questions
Depressive Symptoms and Anxiety Disorder Measurement (Section 5)	PHQ-9 (Patient Health Questionnaire): A self-administered nine-question validated tool to measure depressive symptoms	9 questions
	GAD-7 (Generalized Anxiety Disorder Scale): A self-administered seven-question tool to assess anxiety levels	7 questions
Perception of Depression and Anxiety (Section 6)	Self-perception of depression and anxiety by the respondents (5 questions)	5 questions
Mental Health Support from Educational Institutions (Sections 7, 8, 9)	Open-ended questions related to mental health support from each educational institution and students' satisfaction with those supports. (4 questions)	4 questions

(Source: Compiled by the author)

In the survey questionnaire, the author included open-ended, multiple-choice, and Likert scale-type questions based on the literature review. As per the literature review, two specialized tools were used in this study to assess students'

mental health, especially their depression and anxiety. Firstly, a nine-question depression scale, the Patient Health Questionnaire-9 (PHQ-9), was used to assess the symptoms of depression (Fig 4.3). The PHQ is a self-administered version of the Primary Care Evaluation of Mental Disorders (PRIME-MD) diagnostic instrument for common mental disorders. It is a useful clinical research tool to identify depressive symptoms.

Fig 4.3:

Patient Health Questionnaire-9 (PHQ-9)

Name _____ Date _____				
Over the <i>last 2 weeks</i> , how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or hurting yourself in some way	0	1	2	3
(Total Score ____ = ____ + ____ + ____)				

(Source: Internet)

Secondly, the Generalized Anxiety Disorder-7 (GAD-7) was used to assess symptoms of anxiety (Piya et al., 2022). GAD-7 is also a self-administered patient questionnaire that is used to test for generalized anxiety disorders and to evaluate their severity (Fig 4.4).

Fig 4.4:

Generalized Anxiety Disorder Assessment (GAD-7)

Over the last 2 weeks, how often have you been bothered by any of the following problems? (Use “✓” to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something might happen	0	1	2	3

(Source: Internet)

PHQ-9 and GAD-7 scores are determined by assigning scores of 0, 1, 2, and 3 to the response categories of “not at all”, “several days”, “more than half of days”, and “nearly every day”, respectively, and then adding together the scores for the

nine questions in case of PHQ-9 and seven questions in case of GAD-7. Several studies have used these scales to screen mental health or to identify the mental well-being of a targeted population (Piya et. al, 2022).

The following Table 4.2 shows the PHQ-9 scores with five different severity levels based on individual score and the proposed treatment actions that can be applied to the patient with depressive symptoms (Kroenke & Spitzer, 2002).

Table 4.2

PHQ-9 scores and Proposed Treatment Actions

PHQ-9 Score	Depression Severity	Proposed Treatment Actions
0 – 4	None-minimal	None
5 – 9	Mild	Watchful waiting; repeat PHQ-9 at follow-up
10 – 14	Moderate	Treatment plan, considering counseling, follow-up and/or pharmacotherapy
15 – 19	Moderately Severe	Active treatment with pharmacotherapy and/or psychotherapy
20 – 27	Severe	Immediate initiation of pharmacotherapy and, if severe impairment or poor response to therapy, expedited referral to a mental health specialist for psychotherapy and/or collaborative management

(Source: Kroenke & Spitzer, 2002)

Similarly, treatment suggestions based on an individual's score are included in the GAD-7 Score Report. Table 4.3 displays the suggested course of treatment, which is based on suggestions made by Spitzer et al. (2006). Those who score eight or above are thought to have a significant probability of receiving a diagnosis of anxiety or a related disease.

Table 4.3

GAD-7 scores and Proposed Treatment Actions

GAD-7 Score	Anxiety Severity	Proposed Treatment Actions
0-4	None-Minimal	None
5-9	Mild	Monitoring, follow-up, lifestyle changes, and stress management techniques
10-14	Moderate	Diagnostic interview, mental status examination, referral to a mental health professional, consider CBT and/or medication
15-21	Severe	Diagnostic interview, mental status examination, referral to a mental health professional, consider pharmacotherapy and CBT

[Source: Collected by the author from the internet based on Spitzer et al. (2006)]

The major reasons behind choosing these two tools for measuring depression and anxiety disorders are ease of use (self-administered), high accuracy in diagnosis, short administration time (maximum 5 minutes), validated for co-morbidities, and suitable for large-scale surveys, which are strongly adjusted with the research design of the present study.

4.6 Data Collection Procedure and Ethical Considerations

4.6.1 Approval and Permissions: The author obtained ethical approval from the concerned institution and permission from the educational authorities and management for conducting the survey. Furthermore, the consent of every respondent was obtained before the survey, and their identity was kept anonymous throughout the study.

4.6.2 Pilot Study: A pilot study is a smaller-scale version of a full-scale study, designed to test the feasibility and effectiveness of the research design, instruments, and procedures. It is often referred to as a feasibility study or a pre-test of specific research tools such as questionnaires or interview schedules (Teijlingen & Hundley, 2002).

The author conducted a pilot study on a small sample to test the reliability and validity of the questionnaire. A total of 32 respondents responded to the pilot survey, which was conducted in January 2025. For pilot studies in quantitative social research, samples between 24 and 36 participants are optimal for achieving maximum information with minimal cost (Johanson & Brooks, 2010). Following the pilot survey, the author refined the questionnaires to address potential misunderstandings. Some questions had become ambiguous and repetitive due to translation into the native language. To improve clarity, the wording was made more precise. As a result, the pilot survey improved the questionnaire's reliability and strengthened confidence in the forthcoming full-scale survey.

4.6.3 Main Survey: The questionnaire was administered in a classroom setting with the presence of the author to clarify doubts and ensure complete and accurate responses. Before starting to respond to the questionnaire, the students were informed about the study's basic goals. Anonymity and confidentiality of the participants were ensured.

4.7 Data Analysis Plan

4.7.1 Descriptive Statistics: Frequencies, means, and standard deviations used to describe the socio-demographic characteristics, depressive symptoms, and scores of independent variables.

4.7.2 Inferential Statistics:

Chi-square tests are used to assess the relationship between categorical variables (e.g., gender, school location) and depressive symptoms and anxiety disorder.

Cramér's V correlation coefficients assess the degree of association between two categorical variables, as depicted through Cramér's V heatmap. Cramér's V quantifies how strongly two categorical variables are associated. Values range from 0 (no association) to 1 (perfect association), making it easy to interpret the degree of relationship through a quick visual interpretation.

Multiple Binary Logistic Regression Analysis is used to identify the predictors of depressive symptoms and quantify the strength of the association between independent variables and depressive symptoms and anxiety disorders.

Finally, a **Word cloud** is created by using Python to depict the result of the open-ended questions.

4.8 Summary

This chapter systematically outlines the methodological framework employed to examine the factors influencing depressive symptoms and anxiety disorders among Higher Secondary (HSC) students in Bangladesh in the post-COVID-19 context. Guided by clearly defined research objectives and questions, the study explores the roles of socioeconomic status, social capital, academic achievement, and lifestyle patterns in shaping students' mental health outcomes. The research adopts a cross-sectional survey design with stratified random sampling to ensure representation across urban and rural areas. A structured, self-administered questionnaire was used to collect data from HSC students aged 15–18 years. The survey included demographic data, and assessments of social capital, academic achievements, lifestyle behaviors, and mental health status using validated tools—PHQ-9 for depression and GAD-7 for anxiety.

The conceptual and analytical frameworks were developed based on an extensive literature review, positing socioeconomic status as a moderating variable, and social capital, academic performance, and lifestyle patterns as independent variables influencing mental health. The chapter details hypothesis development and outlines the analytical plan, which includes descriptive statistics, chi-square tests, t-tests, and multiple binary logistic regression analysis.

To ensure methodological rigor, the study incorporated a pilot test, ethical approval procedures, and ensured respondent anonymity. Ultimately, this methodological design provides a robust foundation for identifying and analyzing key determinants of adolescent mental health during post-pandemic recovery.

CHAPTER FIVE: SURVEY AND ANALYSIS

5.1 Introduction

The study focused on the factors influencing the mental well-being of Higher Secondary Students after COVID-19 in Bangladesh. Therefore, we administered a questionnaire survey among the HSC students to understand their challenges regarding depressive symptoms and anxiety. A descriptive analysis of all variables is depicted in this chapter to verify the reliability and validity of the items. Additionally, chi-square tests, t-tests, and multiple logistic regression analysis are conducted to get a more in-depth overview of our research objectives.

5.2 Descriptive Analysis

5.2.1 Demographic Characteristics

In this part, we analyzed the demographic characteristics such as age, gender, geographical location, and socioeconomic status of the families of respondents. The survey questionnaire was distributed among the respondents throughout the country across several locations. The survey was conducted through both online and offline methods in February 2025.

A total of 407 students (ages 15–18) participated in the survey. The mean age was 17.6 years ($SD \approx 0.6$), with roughly two-thirds (66.6%) being 18 years old and about 27.8% 17 years old (only 5.2% were 16 and <1% were 15) (Fig. 5.1). Female students comprised the majority of respondents (64.4%, $n=262$) compared to males (35.6%, $n=145$). Urban and rural representation was nearly balanced (47.9% urban vs. 52.1% rural).

Fig. 5.1

Age-wise total percentage of students ($n=407$)

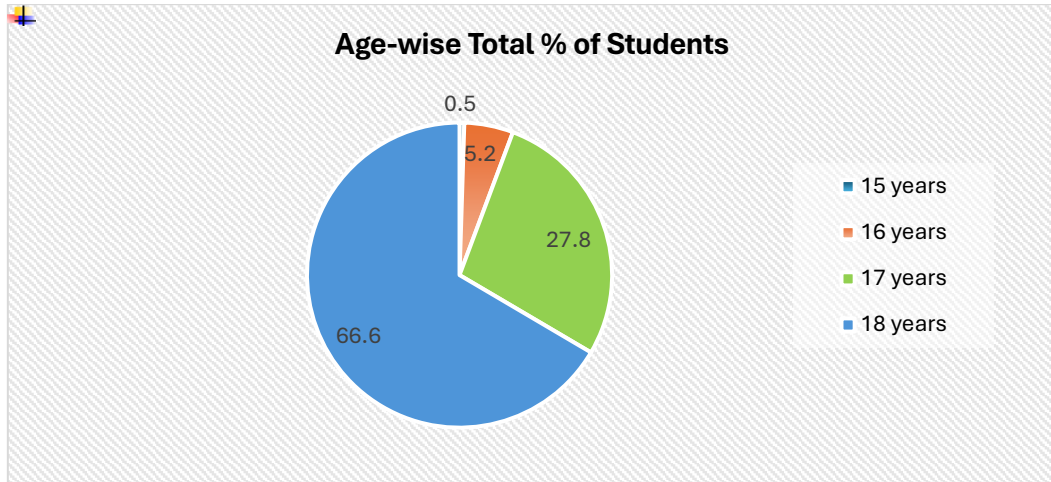


Table 5.1 summarizes the age distribution by gender and location. Notably, the sample's gender and locale composition reflect an overrepresentation of female and rural students, which is essential to consider when interpreting subsequent results.

Table 5.1: Age of the students by Gender and location

Age (in years)	Total	Gender		Location	
		Male	Female	Urban	Rural
n	407	145	262	195	212
Percent (%)	100	35.6	64.4	47.9	52.1
Mean	17.6	17.7	17.6	17.7	17.5
Std. dev	0.6	0.6	0.6	0.5	0.7
Min. - Max	15 - 18	15-18	15-18	16-18	15-18

In terms of socio-economic background, respondents came from diverse family income levels. About 21.6% reported a monthly family income below 10,000 BDT, and a similar proportion (21.9%) were in the 10,000–20,000 BDT range. Approximately 20.9% fell in the 20,000–30,000 BDT bracket, with smaller fractions in higher income tiers; overall, about 14.6% had family income $\geq 50,000$ BDT per month. For the ease of data analysis, we merged the monthly family

income into three categories or three income ranges from nine categories, which are shown in the following Table 5.2.

Table 5.2 Ranges of monthly family income (n=407)

Range (in BDT)	Urban	Rural	Total	Percent (%)
<30000	132	130	262	64.37
30000-60000	42	63	105	25.80
>60000	21	19	40	9.83
Total	195	212	407	100.0

(Note: BDT- Bangladeshi Currency, Taka)

Parental education levels were generally low to moderate. One-third of fathers had only primary education, and only 10.6% obtained postgraduate degrees. Mothers' education was even lower; over 69% had at most an SSC (secondary) qualification, and only ~5% attained postgraduate education. Parental occupations varied; over one-third of fathers were business owners (35.1%), with others engaged in agriculture (11.3%), government or private service (combined ~22%), or residing abroad (14%). By contrast, the overwhelming majority of mothers were homemakers (about 89%), with very few in formal employment. These demographic details suggest that many students come from families of modest means and education, which could influence their support systems and experiences during the pandemic.

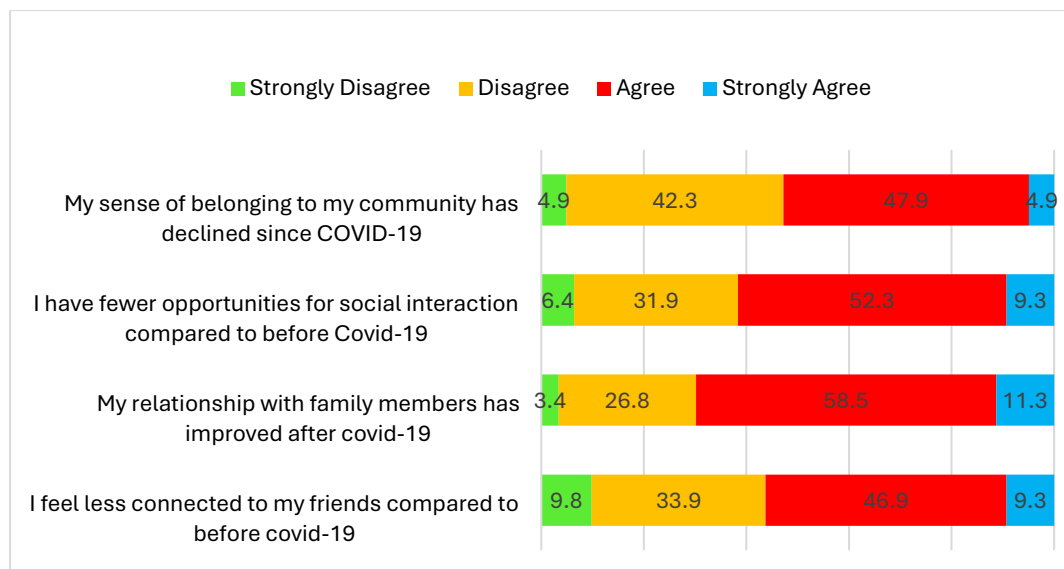
5.2.2 Social Capital

The pandemic has evidently affected students' social connections and sense of community belonging. In the survey, **56.2%** of students agreed or strongly agreed that they felt *less connected to friends compared to before COVID-19* (46.9% "Agree" and 9.3% "Strongly Agree"), whereas about 43.7% disagreed (including 9.8% strongly disagreeing) (Fig. 5.2). In contrast, family relationships for many students strengthened during the pandemic; **69.3%** agreed that *their relationship with family members improved after COVID-19* (58.5% "Agree", 11.3% "Strongly Agree"), while roughly 30% reported no improvement or disagreed. Increased time

at home may have fostered more family interaction and support for a majority of students.

Fig. 5.2

Perception of social capital (n=407)



Students also reported having *fewer opportunities for social interaction* than before. Over half (52.3%) agreed they had fewer chances to socialize (e.g., meet friends or attend community activities), with only 6.4% strongly disagreeing with that statement. Similarly, just under half (47.9%) felt *their sense of belonging to their community had declined* since COVID-19, compared to ~42% who did not perceive a decline. These findings reflect a general reduction in social capital, students' networks, and community engagement during the pandemic. The disruption of everyday school life and extracurriculars likely contributed to feelings of isolation.

Interestingly, when comparing social activity frequency *before* vs. *after* COVID-19, students' responses suggest an eventual return to socializing for some (Table 5.3). For the period **before COVID-19**, a large proportion (68.6%) showed that they interacted socially very often, whereas only ~19.9% had rarely frequent pre-pandemic interactions. By contrast, **after COVID-19 began**, 44.2% reported socializing "very often" and another 12.0% at least

weekly, while 37.3% said they *rarely* met friends or participated in community programs post-pandemic.

Table 5.3: Social Interaction Comparison Before-After Pandemic (Q13-14)

Social interaction	Before Pandemic		After Pandemic	
	(n)	(%)	(n)	(%)
Very often	279	68.6	180	44.2
Weekly	33	8.1	49	12.0
Monthly	14	3.4	26	6.4
Rarely	81	19.9	152	37.3
Total	407	100	407	100

5.2.3 Academic Achievements

The sample included first-year (Grade XI) and second-year (Grade XII) students of higher secondary level in roughly a 56:44 ratio (Table 5.4). Academic records indicate that students perceived struggles during the COVID-19 period, and their grades fell. For example, among first-year students, 55.5% of them got GPA 5.0 in the PSC examination, which degraded eventually to 50.7% and 35.2% in JSC and SSC examinations, respectively, and finally, only 14.1% of them got GPA 5.0 in the first year's final examination at college (Fig. 5.3). The same trends were also observed in the case of Grade XII or second-year students (n=180), 46.1% of them got perfect GPA 5.0 in PSC, which dropped down to only 10.6% in the second year's final examination at college (Fig. 5.4).

Table 5.4: Grade-wise total students (Q15)

Grade	Frequency	Percent
First Year	227	55.8
Second Year	180	44.2
Total	407	100.0

Fig. 5.3

Comparisons of results in different examinations for Grade XI students (n=227)

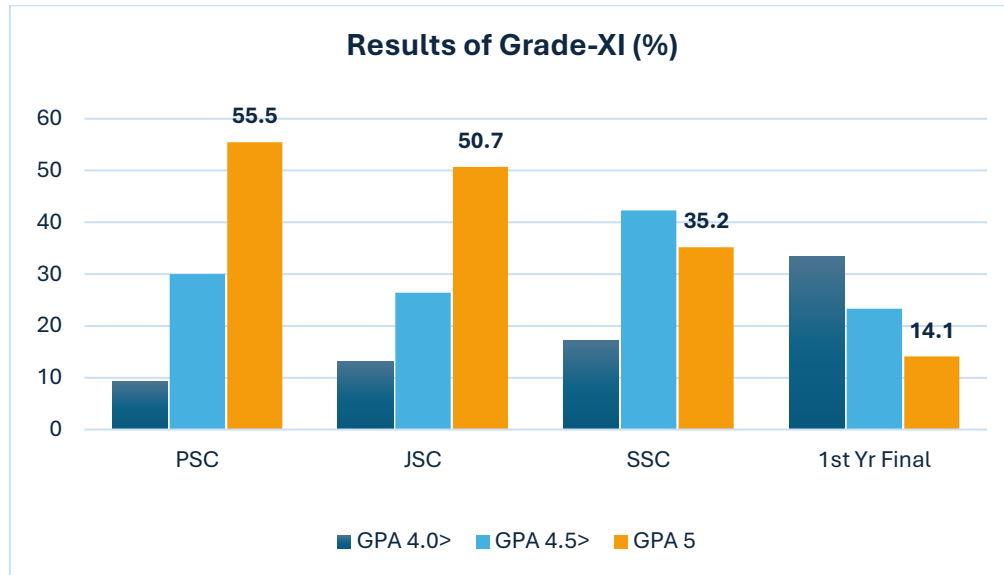
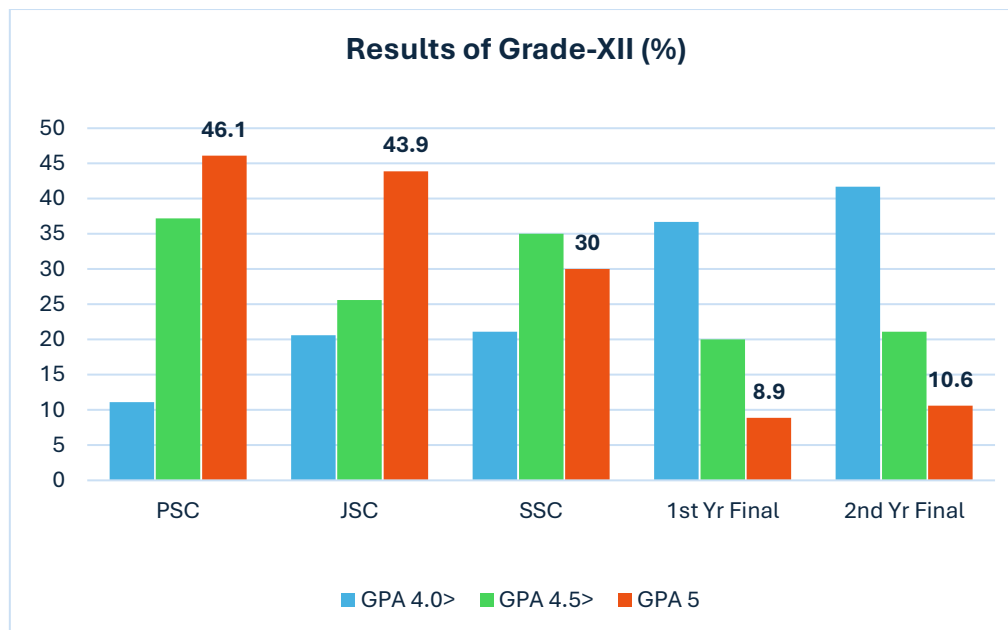


Fig. 5.4

Comparisons of results in different examinations for Grade XI students (n=180)

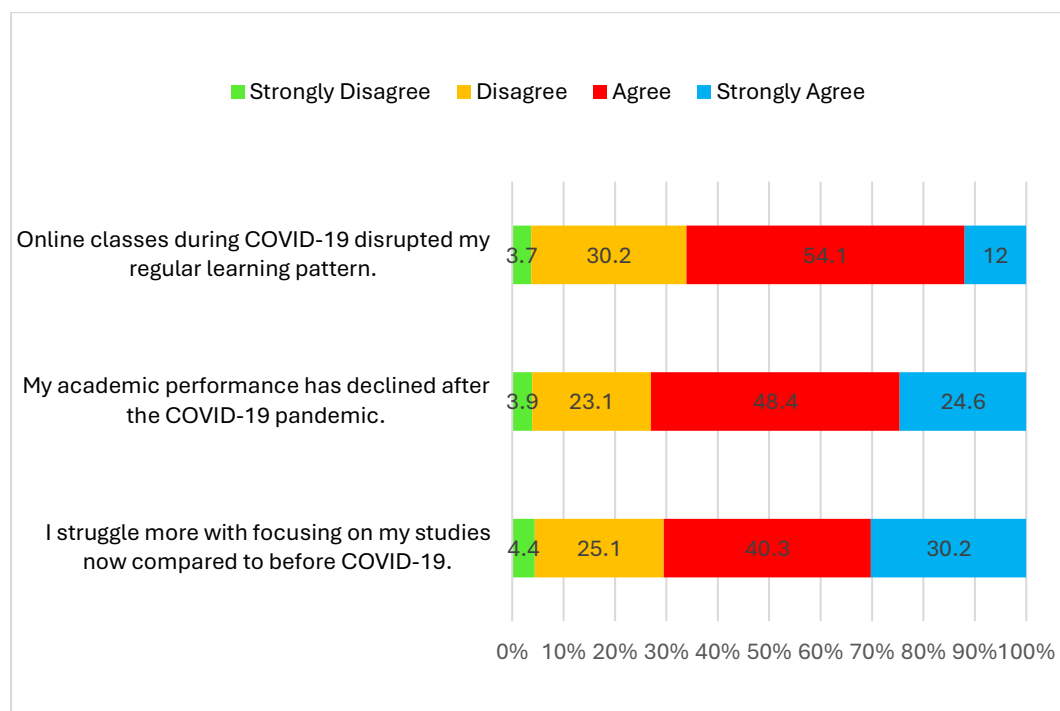


Academic performance and engagement were markedly disrupted by the pandemic. Over 70% of students reported difficulty concentrating on their studies; 40.3% “Agree” and 30.2% “Strongly Agree” that *“I struggle more to focus on my studies now compared to before COVID-19.”* Only 29% felt their focus was

not worse than before. In parallel, the majority perceived a decline in their academic performance; 48.4% agreed and 24.6% strongly agreed that *their academic performance had declined* post-pandemic, totaling ~73% acknowledging academic setbacks. Furthermore, *online classes disrupted regular learning patterns* for most students. Approximately **66.1%** agreed or strongly agreed that online learning during COVID-19 “*disrupted my regular learning pattern,*” while ~33% did not find it disruptive.

Fig. 5.5

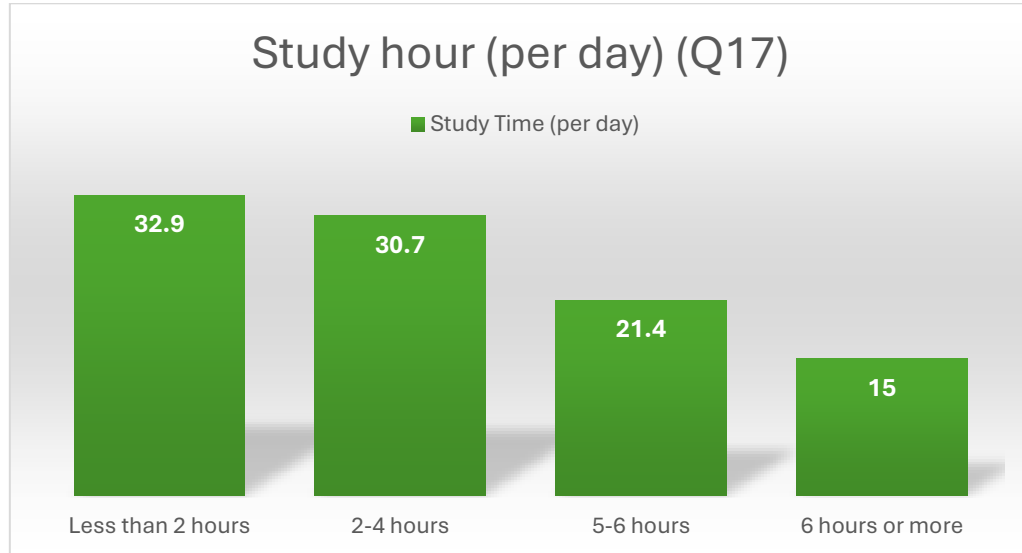
Perception about academic activities (n=407)



Indeed, study habits changed significantly; when asked “*How many hours per day do you currently study?*” the plurality (32.9%) of students said **<2 hours**, and another 30.7% studied only 2–4 hours. Less than 15% kept up a study schedule of 6 or more hours per day. Thus, roughly two-thirds of students were studying at most a few hours a day, far below the pre-pandemic expectations for college-bound students. This reduction in study time likely contributed to the perceived drop in performance. Figure 5.6 presents a summary of students’ study time.

Fig. 5.6

Percentage of total study hours per day (Q17)



Remote learning participation was suboptimal as well. Only 38.3% of students reported *online classes* as their primary mode of education during the pandemic, while an equal share (38.7%) relied mostly on **self-study** to keep up. Another 16.2% primarily attended private coaching or tuition, and 6.8% admitted they essentially had **no study** at all during the school closures in the pandemic period. Even among those with access to online schooling, attendance was inconsistent; only 18.7% said they “*always*” attended their online classes, 42.5% attended “*sometimes*,” and the rest attended “*rarely*” (17.0%) or “*never*” (21.9%). In other words, nearly 40% rarely or never joined live online classes. Table 5.5 presents a summary of students’ mode of education during the pandemic and the frequency of attending online classes during COVID-19.

Table 5.5: Mode of education primarily used & frequency of attending online classes during the COVID-19 pandemic (Q18-19)

Mode of Education During COVID-19	Percent (%)	Attending Online Classes during COVID-19	Percent (%)
Online classes	38.3	Always	18.7

Self-study	38.7	Sometimes	42.5
Tuition/ Coaching	16.2	Rarely	17.0
No study	6.8	Never	21.9
Total	100.0	Total	100.0

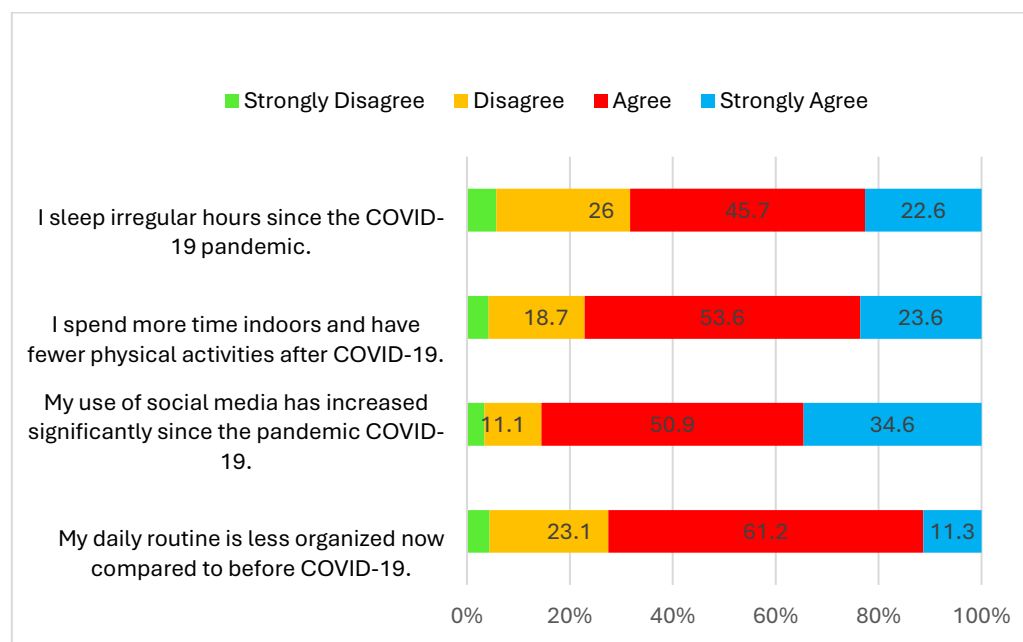
5.2.4 Lifestyle Pattern Changes

Students' lifestyles underwent significant changes under pandemic conditions, which in turn relate to their well-being. **Routine and daily activities were widely disrupted (Q23).** Approximately 72% of students agreed that their *daily routine is less organized now compared to before COVID-19*. Only about 27% maintained that their routine remained as organized as before (Fig. 5.7).

One major lifestyle shift was the **surge in digital and indoor activities**. Fully 85% of respondents said *their use of social media increased significantly* during the pandemic (50.9% agree, 34.6% strongly agree) (Fig. 5.7).

Fig. 5.7

Perception about Lifestyle pattern changes (n=407)



Indeed, when asked how much time they spend on social media per day (Q27), only 10.1% reported using it “rarely,” while the vast majority were online daily. About 24.6% spent an hour or two on social media each day, **31.2% spent 3–5 hours**, and fully **34.2%** spent more than 5 hours per day on social networking sites (SNS) (Table 5.6). This indicates that two-thirds of students were engaging in over three hours of social media use daily. Such high screen time is a notable change that has been linked to increased sedentary behavior and mental strain.

In parallel, 77.2% of students agreed they *spend more time indoors and engage in fewer physical activities after COVID-19* (Fig. 5.7). Only about 23% disagreed, affirming that the majority became substantially less active physically. Consistently, one-third (30.5%) of students reported **Never** and 56.8% **Occasionally** participating in sports or exercise (Q28), while the remaining 12.8% indicated participating in sports or exercise on a weekly or daily basis. Table 5.6 shows the percentage of students reporting increases in social media use and decreases in physical activity.

Table 5.6: Percentage of students reporting increases in social media use and decreases in physical activity (Q27-28)

Social Media Use (Per day)	Frequency (n)	Percent (%)	Sports/ Exercise	Frequency (n)	Percent (%)
Rarely	41	10.1	Daily	17	4.2
1-2 hours/day	100	24.6	4-5 days/week	35	8.6
3-5 hours/day	127	31.2	Occasionally	231	56.8
More than 5 hours/day	139	34.2	Never	124	30.5
Total	407	100.0	Total	407	100.0

Sleep patterns also changed markedly. About **68%** of students agreed that *“I sleep irregular hours since the COVID-19 pandemic,”* with 22.6% strongly agreeing and 45.7% agreeing (Fig. 5.7). Only roughly 31% maintained a regular sleep schedule. When asked about average sleep duration (Q29), the responses

varied; a small fraction of students (1.2%) slept less than **3 hours** per night, but a significant number (~30%) slept **8 or more hours** on average. Others, 9.1% and 61.2%, got 3-5 hours and 5-7 hours of sleep per night, respectively. Table 5.7 illustrates the distribution of daily sleep duration among respondents.

Table 5.7: Distribution of daily sleep duration among respondents (Q29)

Hours of Sleep (Per day)	Frequency	Percent
Less than 3 hours	5	1.2
3-5 hours	37	9.1
5-7 hours	249	61.2
8 hours or more	116	28.5
Total	407	100.0

5.3 Mental Health: Depression and Anxiety

The COVID-19 pandemic's toll on students' mental health is evident in the prevalence of depressive and anxious symptoms in our sample. Using the PHQ-9 and GAD-7 scales, we assessed current depression and anxiety levels. Strikingly, **almost two-thirds of students reported moderate to severe symptoms of depression**. Specifically, based on PHQ-9 scores, 20.6% of students fell in the *Moderate* depression category, 21.1% in *Moderately Severe*, and 20.4% in *Severe* depression (cumulatively 62.1% with at least moderate depression). A further 27.8% had *Mild* depression, and only about 10% showed *None or minimal* depressive symptoms. On the other hand, geographically, 25.1% of urban students fell in the *Severe* depression category, while in the rural setting, the highest percentage is 32.5% for the *Mild* depression category. In short, depression has become highly prevalent in this cohort.

Anxiety levels were similarly elevated. According to GAD-7 scoring, approximately **46%** of the students had moderate to severe anxiety symptoms, with the remaining 54% in the mild or minimal range. Breaking it down, about 22.6%

likely had *Severe anxiety*, and roughly 23% had *Moderate anxiety*. However, 27.2% of urban students fell in the *Moderate anxiety* category, while in the rural setting, the highest percentage is 31.6% for the *Mild Anxiety* category.

Table 5.8 provides the distribution of students across depression severity levels, and Table 5.9 provides the distribution across anxiety severity levels, by gender and location.

Table 5.8: Level of Depression among the students (n=407)

PHQ-9 Score (Depression level)	Gender		Location		Total
	Male	Female	Urban	Rural	
	n (%)	n (%)	n (%)	n (%)	
Minimal	15 (10.3)	26 (9.9)	15 (7.7)	26 (12.3)	41 (10.1)
Mild	41 (28.3)	72 (27.5)	44 (22.6)	69 (32.5)	113 (27.8)
Moderate	29 (20.0)	55 (21.0)	46 (23.6)	38 (17.9)	84 (20.6)
Moderately severe	28 (19.3)	58 (22.1)	41 (21.0)	45 (21.2)	86 (21.1)
Severe	32 (22.1)	51 (19.5)	49 (25.1)	34 (16.0)	83 (20.4)
Total	145 (100)	262 (100)	195 (100)	212 (100)	407 (100)

Table 5.9: Anxiety Level among the students (n=407)

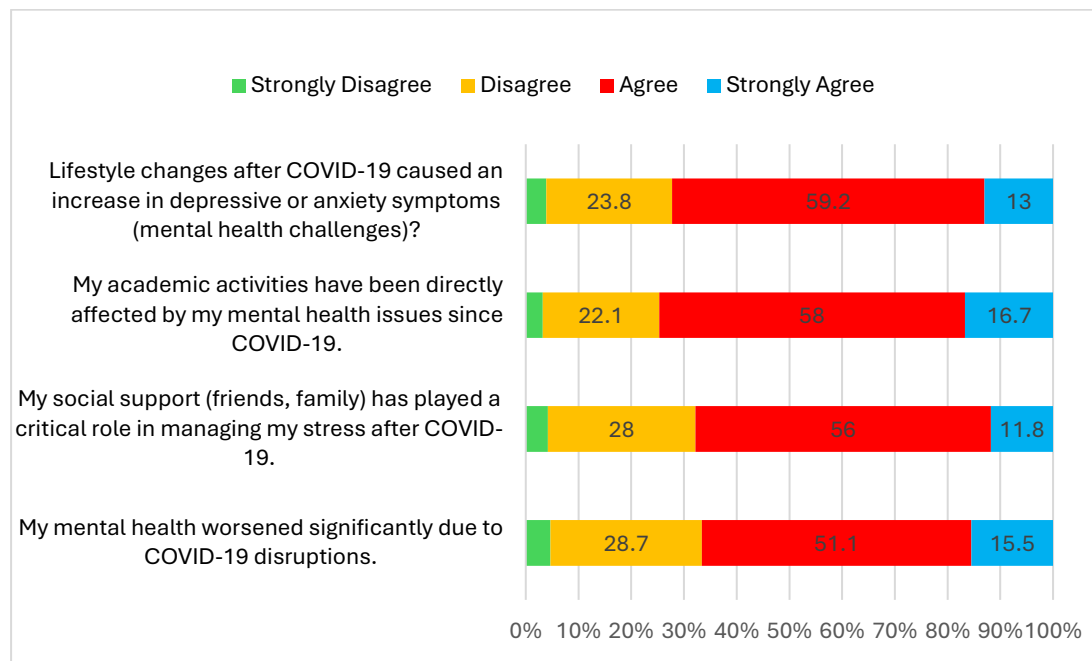
GAD-7 Score (Anxiety level)	Gender		Location		Total
	Male	Female	Urban	Rural	
	n (%)	n (%)	n (%)	n (%)	
Minimal	36 (24.8)	66 (25.2)	39 (20.0)	63 (29.7)	102 (25.1)
Mild	50 (34.5)	68 (26.0)	51 (26.2)	67 (31.6)	118 (29.0)
Moderate	31 (21.4)	64 (24.4)	53 (27.2)	42 (19.8)	95 (23.3)
Severe	28 (19.3)	64 (24.4)	52 (26.7)	40 (18.9)	92 (22.6)
Total	145 (100)	262 (100)	195 (100)	212 (100)	407 (100)

Students' self-assessments corroborate these quantitative findings. Nearly two-thirds (66%) agreed that "*my mental health worsened significantly due to COVID-19 disruptions*". Only about 33% disagreed with that statement, indicating that the majority felt the pandemic had a detrimental effect on their psychological

well-being. Moreover, about **67.8%** of students acknowledged that their *social support from friends and family played a critical role in managing stress after COVID-19* (56.0% agree, 11.8% strongly agree). Another notable finding is the perceived interplay between mental health, academics, and lifestyle pattern change. As mentioned, 74.7% of students agreed that *their academic activities have been directly affected by their mental health issues during COVID-19*, while 72.2% of students agreed that *their lifestyle changes after COVID-19 caused an increase in depressive or anxiety symptoms*. (Fig. 5.8).

Fig. 5.8

Perception on Mental wellbeing (Depression and Anxiety) (n=407 & Q30-33)



5.4 Dependency Analysis: Factors Associated with Mental Health

This section presents the dependency analysis exploring associations between various demographic, social, academic, and lifestyle factors and the mental health outcomes of depressive symptoms and anxiety among higher secondary students. The analysis employs Chi-square tests and correlation methods to identify significant relationships and potential predictors impacting students' mental well-being in the post-COVID-19 context. Before that, the PHQ-9 demonstrated good

internal consistency, with a Cronbach's alpha of .84, while the GAD-7 showed excellent reliability ($\alpha = .90$), indicating strong internal consistency among the items.

In this study, we categorized continuous and multi-level variables into fewer meaningful groups to enhance the clarity, consistency, and robustness of statistical analysis. Specifically, depression and anxiety levels were dichotomized into two categories, “minimal to mild” and “moderate to severe”, based on established clinical cut-off scores (PHQ-9 ≥ 10 ; GAD-7 ≥ 8). This approach allowed us to differentiate between probable clinical cases and non-cases, facilitating more interpretable results. Additionally, demographic and other variables were grouped to ensure sufficient sample sizes within each category and to meet the assumptions required for inferential statistical techniques such as chi-square tests and logistic regression.

We computed total scores for each respondent on the PHQ-9 and GAD-7 scales and then classified them into binary categories according to the recommended clinical thresholds. Sociodemographic variables such as age were grouped into two categories (15–17 years and 18 years), reflecting the typical age distribution in higher secondary education. Father's occupation was categorized into major employment sectors, such as government service, private/business, and agriculture, based on response frequency and a minimum cell size of approximately 30 to ensure statistical validity. For social capital, academic achievements, and lifestyle indicators, which were originally measured using four-point Likert scales, we either retained them as ordinal variables for correlation analysis or recoded them into binary form (e.g., high vs. low, agree vs. disagree) based on the sample median, to maintain consistency and facilitate regression analysis.

5.4.1 Demographic Data and Its Association with Depression and Anxiety

Statistical analyses using Chi-square tests revealed that among demographic variables, **location (urban/rural)** and **father's occupation** significantly influenced mental health outcomes. Urban students demonstrated significantly higher levels of moderate-to-severe depression (69.7%) compared to rural counterparts (55.2%),

with a statistically significant Chi-square result ($p = .002$). Likewise, anxiety levels were notably higher among urban students (53.8%) than rural students (38.7%), also significant at $p = .002$. Additionally, father's occupation emerged as a significant demographic predictor, influencing depression ($p = .008$) and anxiety ($p = .003$). Students whose fathers were employed in private services or were unemployed experienced notably higher depressive and anxious symptoms. These findings strongly support the hypothesis **(H1)** that environmental and socioeconomic contextual differences significantly influence students' mental health.

However, gender differences were not statistically significant for either depression ($p = .809$) or anxiety ($p = .113$), suggesting both genders are equally vulnerable to mental health concerns within this cohort. Age, family income, and parental education did not yield statistically significant results for either depression or anxiety. Specifically, age ($p = .325$ for depression, $p = .114$ for anxiety), family income ($p = .711$ for depression, $p = .577$ for anxiety), and parental education (p -values all $> .05$) showed no statistically significant associations with depression or anxiety, suggesting the impact of these factors is moderated or overshadowed by other contextual elements. Table 5.10 shows some key demographic variables with statistically significant results ($p < 0.05$) for clear understanding. The detailed table is attached to Appendix II (Tables 1 and 2).

Table 5.10: Demographic Data and Its Association with Depression and Anxiety

Demographic variable	Depression p-value	Anxiety p-value
Gender	0.809	0.113
Location (Urban/Rural)	0.002*	0.002*
Family income	0.711	0.577
Father's Occupation	0.008*	0.003*
Father's education	0.350	0.915

Note: *Chi-square test significant at $p < 0.05$. Socio-demographic variables with statistically significant results ($p < 0.05$) are shown for clarity. The detailed table is attached to Appendix II (Tables 1 and 2).

5.4.2 Social Capital and Its Association with Depression and Anxiety

The results affirm robust statistical associations between dimensions of social capital and mental health outcomes. Students reporting reduced peer connectivity since COVID-19 experienced significantly elevated depression ($p = .046$) and anxiety ($p = .007$). Limited social interaction opportunities post-pandemic were strongly linked to both depression ($p = .003$) and anxiety ($p = .002$), affirming the protective hypothesis (H2). Similarly, diminished community belonging was significantly correlated with heightened depressive ($p = .025$) and anxious symptoms ($p = .004$).

Conversely, improvement in family relationships during COVID-19 functioned as a significant protective factor, reducing the severity of both anxiety ($p = .001$) and depression ($p = .015$), underscoring family support as a potent protective factor within the conceptual framework. Notably, pre-pandemic social interaction frequency did not significantly impact current mental health outcomes, although a reduction in post-pandemic interaction frequency was significantly related to higher depression ($p = .005$). Table 5.11 shows only key social capital variables with statistically significant results ($p < 0.05$) for a clear understanding. The detailed table is attached to Appendix II (Tables 3 and 4).

Table 5.11 Social Capital and Its Association with Depression and Anxiety

Social Capital variables	Depression p-value	Anxiety p-value
Peer connection	0.046*	0.007*
Family relationships	0.015*	0.001*
Perception of opportunities for interaction	0.003*	0.002*
Opportunities for interaction (post-pandemic)	0.005*	0.064

Community belongingness	0.025*	0.004*

Note: *Chi-square test significant at $p < 0.05$. Social Capital variables with statistically significant results ($p < 0.05$) are shown for clarity. The detailed table is attached to Appendix II (Tables 3 and 4).

5.4.3 Academic Achievements and their Association with Depression and Anxiety

The statistical relationship between objective academic achievements (measured by GPA) and mental health outcomes was generally weak and nonsignificant across most GPA categories. However, one exception was noted; first-year GPA was significantly associated with depression ($p = .038$). Furthermore, categorizing GPA differently revealed a significant association between lower GPA ($< \text{GPA } 3.0$) and anxiety ($p = .014$).

Conversely, subjective academic experiences showed robust statistical significance; reduced study hours (less than two hours per day) were significantly correlated with higher depression and anxiety ($p < .001$ for both). Additionally, increased difficulty in concentration, perceived decline in academic performance, and disruptions due to online classes significantly correlated with higher depression and anxiety ($p < .001$), which strongly supports the hypothesis (H3) emphasizing subjective academic experience over objective performance metrics. Table 5.12 shows only key academic achievement variables with statistically significant results ($p < 0.05$) for clear understanding. The detailed table is attached to Appendix II (Tables 5-10).

Table 5.12 Academic Achievements and Their Association with Depression and Anxiety

Academic Achievement Factors	Depression p-value	Anxiety p-value
GPA First Year	0.038*	0.072
GPA < 3.0	0.128	0.014*
Reduced study hours	0.000*	0.000*
Difficulty concentrating	0.000*	0.000*

Perceived academic decline	0.000*	0.000*
Disrupted regular learning	0.015*	0.000*

Note: *Chi-square test significant at $p < 0.05$. Academic achievements variables with statistically significant results ($p < 0.05$) are shown for clarity. The detailed table is attached to Appendix II (Tables 5-10).

5.4.4 Lifestyle Patterns and Their Association with Depression and Anxiety

Lifestyle-related variables displayed significant predictive strength for mental health outcomes. Disorganization of daily routines after COVID-19 was highly significantly correlated with elevated depression and anxiety ($p < .001$). Increased use of social media showed strong associations with both depression and anxiety ($p < .001$). Similarly, decreased physical activity was statistically significant in predicting increased depression ($p = .002$) and anxiety ($p < .001$). Irregular sleep patterns also significantly contributed to heightened depression and anxiety levels ($p < .001$). Additionally, longer daily social media usage (exceeding five hours) was strongly linked with higher depressive and anxiety symptoms ($p < .001$). Reduced engagement in sports and exercise significantly correlated with higher mental distress ($p < .001$). These results provide compelling support for the hypothesis (H4), underscoring the critical role of lifestyle in adolescent mental health post-pandemic. Table 5.13 shows only key Lifestyle patterns variables with statistically significant results ($p < 0.05$) for clear understanding. The detailed table is attached to Appendix II (Tables 11 and 12).

Table 5.13 Lifestyle Patterns and Their Association with Depression and Anxiety

Lifestyle Factors	Depression p-value	Anxiety p-value
Disorganized routines	0.000*	0.000*
Increased social media use	0.000*	0.000*
Reduced physical activity	0.000*	0.000*
Irregular sleep	0.000*	0.000*

Note: *Chi-square test significant at $p < 0.05$. Lifestyle pattern variables with statistically significant results ($p < 0.05$) are shown for clarity. The detailed table is attached to Appendix II (Tables 11 and 12).

5.4.5 Correlation heatmap

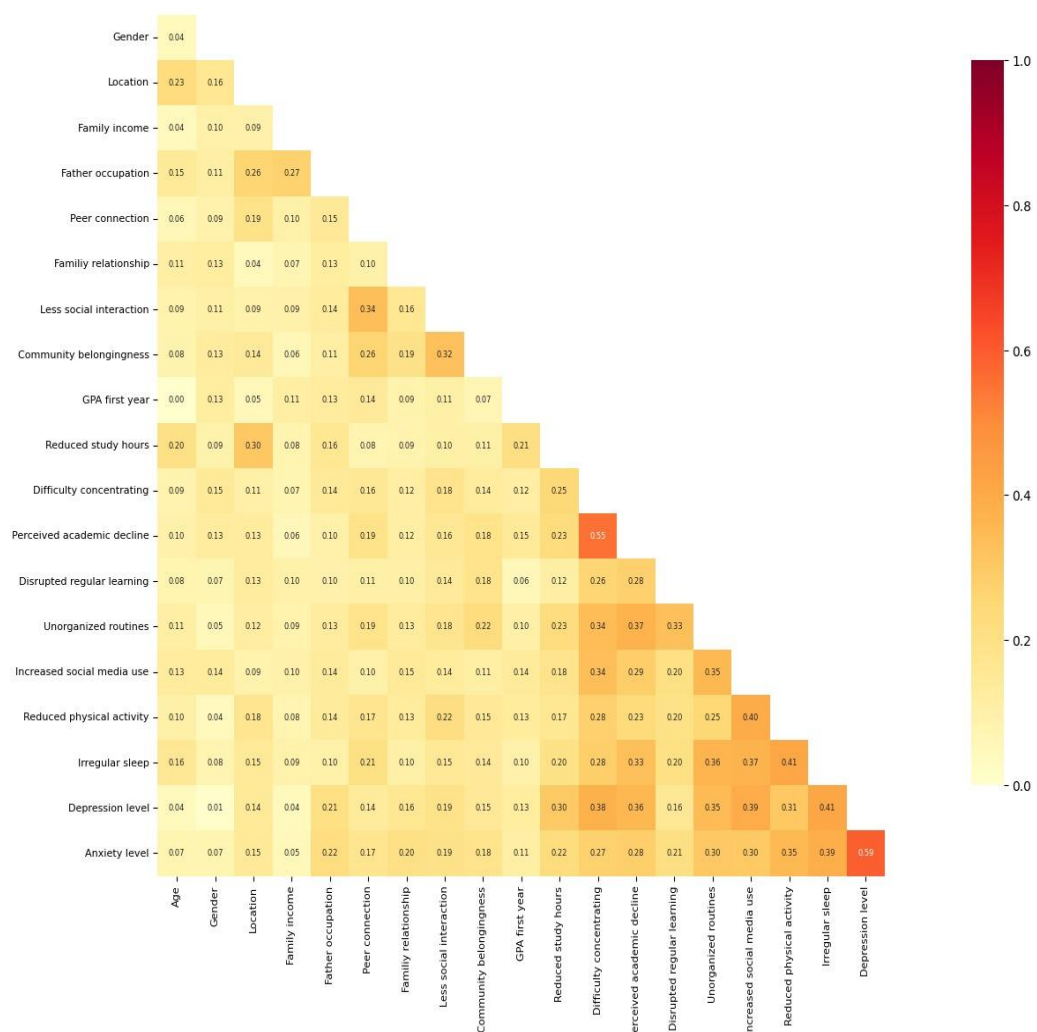
The bivariate correlation matrix (Fig. 5.9) provides a comprehensive visual representation of the interrelationships among the principal variables examined in this study, including depressive symptoms, anxiety levels, social capital dimensions, academic achievement indicators, and lifestyle pattern measures. The heatmap utilizes Cramér's V correlation coefficients to quantify the magnitude and direction of associations, with color gradations distinguishing positive and negative relationships. Cramér's V quantifies how strongly two categorical variables are associated. Values range from 0 (no association) to 1 (perfect association), making it easy to interpret the degree of relationship through a quick visual interpretation. According to IBM Cognos Analytics, Cramér's V is calculated as an Effect Size (ES) for the chi-square test of independence, where an $ES \leq 0.2$ signifies a weak connection, while $0.2 < ES \leq 0.6$ suggests a moderate one, and an $ES > 0.6$ points to a strong association.

The correlation heatmap matrix displays a predominantly weak pattern of associations among the variables; the majority of coefficients remain below 0.30. Notably, the heatmap forms two conceptual clusters. First, the mental-health cluster shows a strong association between anxiety and depression (0.59), corroborating the well-documented comorbidity of these conditions in samples. These mood variables also correlate moderately with academic-function indicators, difficulty concentrating (0.38) and perceived academic decline (0.36), which supports the hypothesis (H3) emphasizing subjective academic experience over objective performance metrics.

A second cluster centers on daily routine disruption. Irregular sleep exhibits moderate correlations with both unorganized routines and depression (each 0.41), while increased social-media use aligns with unorganized routines (0.40). Reduced physical activity, although slightly weaker, still aligns with disordered routines and sleep (0.35). These interconnections imply that irregular lifestyle patterns constitute a shared milieu for both academic difficulties and mental health, and provide compelling support for the hypothesis (H4), underscoring the critical role of

lifestyle in adolescent mental health post-pandemic. In sharp contrast, demographic and socioeconomic variables (age, gender, location, family income, father's occupation) demonstrate negligible associations (all < 0.20) with the psychosocial outcomes, indicating limited explanatory power in this cohort once behavioral factors are considered.

Fig. 5.9
Correlation heatmap



5.5 Result of Multiple Binary Logistic Regression

This section reports the findings from multivariate logistic regression analyses conducted to determine the likelihood of moderate-to-severe depression and anxiety

symptoms based on key predictors such as social capital, academic achievement, and lifestyle patterns. Assumption tests were conducted for all binary logistic regression models. It was found that the necessary assumptions were satisfied across all models. Comprehensive results of the assumption checks are provided in Appendix III, Table 7.

5.5.1 Logistic Regression: Social Capital and Mental Health (Depression & Anxiety)

Table 5.14 Logistic regression predicting likelihood of moderate-to-severe depression (vs. minimal-to-mild) from social capital indicators

Variables	B	SE	OR	95% CI for OR	p-value
Q9: Less peer connection					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.147	0.260	1.16	0.70 - 1.93	0.571
Q10: Improved family relationship					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	-0.796	0.258	0.45	0.27 - 0.75	0.002*
Q11: Less opportunities for social interaction					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.507	0.254	1.66	1.01 - 2.73	0.046*
Q12: Declined community belongingness					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.149	0.253	1.16	0.71 - 1.91	0.556
Q13: Pre-COVID social interaction frequency					
Very often*	-	-	1.00	-	-
Weekly/Monthly	0.054	0.307	1.06	0.58 - 1.93	0.862
Rarely	-0.179	0.440	0.83	0.35 - 1.98	0.684

Q14: Post-COVID social interaction frequency					
Very often*	-	-	1.00	-	-
Weekly/Monthly	-0.502	0.290	0.61	0.34 – 1.07	0.083
Rarely	-0.407	0.351	0.67	0.33 - 1.32	0.247

Note: Dependent variable = Severity of depression (1 = Moderate-to-severe, 0 = Minimal-to-mild); This model was adjusted with Age, Gender, Location, Parental education, Parental occupation, etc.

*Reference category.

*Social capital variables with statistically significant results ($p < 0.05$).

SE = Standard Error; B = Coefficient; OR = Odds Ratio; CI = Confidence Interval for OR.

The detailed table is attached to Appendix III (Table 1).

The logistic regression results in Table 5.14 show that poorer family relationships (Q10) and fewer social opportunities (Q11) were significantly associated with increased odds of moderate-to-severe depression, controlling for other aspects of social capital. Specifically, students who **reported improved family relationships** after COVID-19 had **55% lower odds** of moderate/severe depressive symptoms compared to those who did not ($OR = 0.451$, $p = .002$). Conversely, those perceiving **fewer opportunities for social interaction** were at **1.66 times** greater odds of moderate/severe depression ($OR = 1.660$, $p = .046$). Other dimensions, such as peer connectedness, community belonging, and overall social interaction frequency, did not reach statistical significance in this multivariable model.

Table 5.15 Logistic regression predicting likelihood of moderate-to-severe anxiety (vs. minimal-to-mild) from social capital indicators

Variables	B	SE	OR	95% CI for OR	p-value
Q9: Less peer connection					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.389	0.252	1.48	0.9 - 2.42	0.123
Q10: Improved family relationship					
Strongly Disagree/Disagree*	-	-	1.00	-	-

Strongly Agree/Agree	-0.972	0.245	0.38	0.23 - 0.61	0.000*
Q11: Less opportunities for social interaction					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.380	0.253	1.46	0.89 - 2.4	0.134
Q12: Declined community belongingness					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.393	0.249	1.48	0.91 - 2.41	0.115
Q13: Pre-COVID social interaction frequency					
Very often*	-	-	1.00	-	-
Weekly/Monthly	0.192	0.297	1.21	0.68- 2.17	0.520
Rarely	0.065	0.432	1.07	0.46 - 2.49	0.880
Q14: Post-COVID social interaction frequency					
Very often*	-	-	1.00	-	-
Weekly/Monthly	-0.016	0.276	0.98	0.57- 1.69	0.953
Rarely	-0.026	0.337	0.98	0.5 - 1.89	0.939

Note: Dependent variable = Severity of anxiety (1 = Moderate-to-severe, 0 = Minimal-to-mild); This model was adjusted with Age, Gender, Location, Parental education, Parental occupation, etc.

*Reference category.

*Social capital variables with statistically significant results ($p < 0.05$).

SE = Standard Error; B = Coefficient; OR = Odds Ratio; CI = Confidence Interval for OR.

The detailed table is attached to Appendix III (Table 2).

In the anxiety model, **only improved family relationships** (Q10) remained a robust protective factor; students reporting stronger family ties post-COVID had **62% lower odds** of moderate/severe anxiety (OR = 0.378, $p < .001$). Other social-capital measures like peer connectedness (Q9), social-interaction opportunities (Q11), and community belonging (Q12) were not statistically significant after adjustment, though all trended in the hypothesized direction.

5.5.2 Logistic Regression: Academic Achievement and Mental Health (Depression & Anxiety)

In Table 5.16, the regression analysis indicates that neither medium-nor high-GPA students differed significantly from the <4.0-GPA group in odds of moderate/severe depression ($p = 0.228$ and $p = 0.333$, respectively). Students with a 1st-year **GPA 4.0–4.99** had **1.71 times** the odds of moderate/severe depression vs. $\text{GPA} < 4.0$ (95% CI 0.71–4.12), and those with $\text{GPA} \geq 5.0$ had **1.48 times** the odds (95% CI 0.67–3.31), but these estimates were not statistically significant.

However, in this logistic regression model examining academic-achievement behaviors as predictors of moderate-to-severe depression ($\text{PHQ-9} \geq 10$), four indicators emerged as significant. First, study duration was non-monotonic; students studying **2–4 hours** per day had over **four times** the odds of experiencing moderate/severe depressive symptoms compared to those studying less than **two hours** ($\text{OR} = 4.21$, 95% CI 1.73–10.23, $p = .002$), whereas longer study categories did not reach significance. Second, simply having attended any online class during the pandemic was associated with a doubled odds of depression ($\text{OR} = 2.18$, 95% CI 1.11–4.31, $p = .024$). Third, students who agreed that they “struggle more to focus on their studies now” had **twice** the odds of moderate/severe depression ($\text{OR} = 2.04$, 95% CI 1.12–3.72, $p = .020$). Finally, perceiving a decline in one’s own academic performance was likewise linked to more than double the odds of depression ($\text{OR} = 2.23$, 95% CI 1.21–4.13, $p = .010$). Other academic-achievement variables, including reliance on self-study, private tuition, total abstention from study, frequency of online attendance, and the belief that online classes “**disrupted regular learning**,” did not show significant associations in this multivariable model.

Overall, the model highlights that **reduced and moderate study time**, **online class attendance**, and **negative self-perceptions of focus and performance** are the strongest academic-related predictors of increased depression risk in this cohort of higher secondary students in the post-COVID-19 context.

Table 5.16 Logistic regression predicting the likelihood of moderate-to-severe depression (vs. minimal-to-mild) from academic achievements indicators

Variables	B	SE	OR	95% CI for OR	p-value
Q16: 1st-yr GPA					
Low (<GPA 4)	0.539	0.447	1.71	0.71- 4.12	0.228
Medium (GPA 4 - 4.99)	0.395	0.409	1.48	0.67- 3.31	0.333
High (GPA 5)*	-	-	1.00	-	-
Q17: Study hours					
<2 h/day	1.437	0.453	4.21	1.73 – 10.23	0.002*
2–4 h/day	0.673	0.399	1.96	0.90 – 4.28	0.092
5–6 h/day	0.510	0.402	1.67	0.76 – 3.66	0.205
>6 h/day*	-	-	1.00	-	-
Q18_1: Attended any online classes					
Yes	0.781	0.347	2.18	1.11 – 4.31	0.024*
No*	-	-	1.00	-	-
Q18_2: Relied on self-study					
Yes	0.158	0.300	1.17	0.65 – 2.11	0.598
No*	-	-	1.00	-	-
Q18_3: Took private tuition					
Yes	0.644	0.341	1.90	0.98 – 3.71	0.059
No*	-	-	1.00	-	-
Q20: Struggling to focus					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.713	0.307	2.04	1.12 – 3.72	0.020*
Q21: Academic performance declined					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.803	0.313	2.23	1.21 – 4.13	0.010*
Q22: Online classes disrupted learning					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.223	0.268	1.25	0.74 – 2.12	0.406

Note: Dependent variable = Severity of depression (1 = Moderate-to-severe, 0 = Minimal-to-mild); This model was adjusted with Age, Gender, Location, Parental education, Parental occupation, etc.

*Reference category.

*Academic Achievement variables with statistically significant results ($p < 0.05$).

SE = Standard Error; B = Coefficient; OR = Odds Ratio; CI = Confidence Interval for OR.

The detailed table is attached to Appendix III (Table 3).

In the context of anxiety, again, neither GPA group differed significantly from the <4.0-GPA reference in odds of moderate/severe anxiety ($p = 0.395$ and $p = 0.492$). Medium-GPA students had **1.44 times** the odds (95% CI 0.62–3.36), and high-GPA students had **1.31 times** the odds (95% CI 0.61–2.84) of moderate/severe anxiety, but these effects were **non-significant**.

Table 5.17 Logistic regression predicting the likelihood of moderate-to-severe anxiety (vs. minimal-to-mild) from academic achievements indicators

Variables	B	SE	OR	95% CI for OR	p-value
Q16: 1st-yr GPA					
Low (<GPA 4)	0.366	0.431	1.44	0.62- 3.36	0.395
Medium (GPA 4 - 4.99)	0.271	0.394	1.311	0.61- 2.84	0.492
High (GPA 5)*	-	-	1.00	-	-
Q17: Study hours					
<2 h/day	0.308	0.419	1.360	0.6 - 3.09	0.463
2–4 h/day	-0.172	0.395	0.842	0.39 - 1.83	0.663
5–6 h/day	0.081	0.401	1.084	0.49 - 2.38	0.840
>6 h/day*	-	-	1.00	-	-
Q18_1: Attended any online classes					
Yes	0.224	0.322	1.251	0.67 - 2.35	0.486
No*	-	-	1.00	-	-
Q18_2: Relied on self-study					
Yes	-0.327	0.275	0.721	0.42 - 1.23	0.233
No*	-	-	1.00	-	-
Q18_3: Took private tuition					
Yes	0.375	0.309	1.455	0.79 - 2.66	0.224
No*	-	-	1.00	-	-
Q20: Struggling to focus					

Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.632	0.311	1.881	1.02 - 3.46	0.042*
Q21: Academic performance declined					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.791	0.319	2.206	1.18 - 4.12	0.013*
Q22: Online classes disrupted learning					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.276	0.254	1.318	0.8 - 2.17	0.277

Note: Dependent variable = Severity of anxiety (1 = Moderate-to-severe, 0 = Minimal-to-mild); This model was adjusted with Age, Gender, Location, Parental education, Parental occupation, etc.

*Reference category.

*Academic achievement variables with statistically significant results ($p < 0.05$).

SE = Standard Error; B = Coefficient; OR = Odds Ratio; CI = Confidence Interval for OR.

The detailed table is attached to Appendix III (Table 4).

Among the academic-achievement variables, only two perceptual items showed statistically significant associations with moderate-to-severe anxiety. Students who agreed that “*I struggle more to focus on my studies now compared to before COVID-19*” were **1.88 times** more likely to report moderate-to-severe anxiety than those who did not agree (OR = 1.88; 95% CI 1.02–3.46; $p = .042$). Likewise, students who perceived that “*My academic performance has declined after the COVID-19 pandemic*” had **2.21 times** higher odds of moderate-to-severe anxiety compared to their peers who did not perceive such a decline (OR = 2.21; 95% CI 1.18–4.12; $p = .013$). In contrast, objective measures of prior academic success, such as first-year GPA categories and all modes of study during the pandemic (hours studied, online classes, self-study, tuition, or no study), did not significantly predict anxiety status in this multivariable model. These results suggest that students’ subjective experiences of academic difficulty and decline, rather than their actual GPA or study format, are more salient correlates of anxiety in the post-COVID context.

5.5.3 Logistic Regression: Lifestyle Patterns and Mental Health (Depression & Anxiety)

In examining the predictors of moderate-to-severe depression, several lifestyle factors emerged as significant in the multivariate logistic model (Table 5.18). Participants who reported that their daily routine was “*less organized now compared to before COVID-19*” had more than double the odds of moderate-to-severe depression compared to those who strongly disagreed (OR = 2.19, 95 % CI [1.20–3.99], $p = .010$). A similar pattern was observed for social-media use; those indicating a significant increase in their social-media engagement since the pandemic began showed nearly **four times** higher odds of depression (OR = 3.82, 95 % CI [1.73–8.45], $p = .001$). Irregular sleep patterns were also a robust predictor, with participants sleeping at irregular hours exhibiting more **than twice the odds of depression** (OR = 2.23, 95 % CI [1.27–3.92], $p = .005$).

Furthermore, a clear dose–response relationship emerged for daily hours of social-media use; compared to those using social media **less than three hours per day**, individuals **spending three to five hours had OR = 2.80** (95 % CI [1.51–5.18], $p = .001$), and those **exceeding five hours had OR = 3.26** (95 % CI [1.69–6.32], $p < .001$).

Other lifestyle indicators—time spent indoors with reduced physical activity, exercise frequency, and average nightly sleep duration—did not reach statistical significance in this model (all $p > .05$), suggesting that routine structure, sleep regularity, and social-media exposure are the primary lifestyle correlates of depression in this sample.

Table 5.18 Logistic regression predicting the likelihood of moderate-to-severe depression (vs. minimal-to-mild) from lifestyle patterns indicators

Variables	B	SE	OR	95% CI for OR	p-value
Q23: Less organized daily routine					
Strongly Disagree/Disagree*	-	-	1.00	-	-

Strongly Agree/Agree	0.784	0.306	2.190	1.2 - 3.99	0.010*
Q24: Social media use increased					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	1.341	0.405	3.821	1.73 - 8.45	0.001*
Q25: Spend more time indoors and have fewer physical activities					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.354	0.312	1.425	0.77 - 2.63	0.257
Q26: Irregular sleep hours					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.802	0.288	2.229	1.27 - 3.92	0.005*
Q27: Social media use (hours/day)					
<3 hours/day*	-	-	1.00	-	-
3-5 hours/day	1.029	0.314	2.799	1.51 - 5.18	0.001*
>5 hours/day	1.183	0.337	3.264	1.69 - 6.32	0.000*
Q28: Frequency of playing sports or exercise					
4-7 days/week	0.068	0.473	1.070	0.42 - 2.7	0.886
Occasionally	-0.228	0.310	0.796	0.43 - 1.46	0.462
Never*	-	-	1.00	-	-
Q29: Average sleep hours					
<5 hours*	-	-	1.00	-	-
5-7 hours	-0.222	0.431	0.801	0.34 - 1.86	0.606
≥8 hours	0.150	0.471	1.162	0.46 - 2.93	0.750

Note: Dependent variable = Severity of depression (1 = Moderate-to-severe, 0 = Minimal-to-mild); This model was adjusted with Age, Gender, Location, Parental education, Parental occupation, etc.

*Reference category.

*Lifestyle Patterns variables with statistically significant results ($p < 0.05$).

SE = Standard Error; B = Coefficient; OR = Odds Ratio; CI = Confidence Interval for OR.

The detailed table is attached to Appendix III (Table 5).

For moderate-to-severe anxiety, the logistic regression (Table 5.19) highlights both convergent and divergent patterns. Irregular sleep again emerged as a significant risk factor; those reporting irregular sleep since the pandemic began had over **twice the odds of moderate-to-severe anxiety (OR = 2.15, 95 % CI [1.22–**

3.78], p = .008). Hours of social-media use maintained a dose–response relationship, with **three to five hours per day increasing anxiety** odds by a factor of 2.31 (95 % CI [1.26–4.27], p = .007) and more than five hours yielding OR = 3.73 (95 % CI [1.99–7.00], p < .001).

In contrast to depression, **exercise frequency** showed a protective effect; relative to participants exercising four to **seven days per week, those who never exercised had 50 % lower odds** of moderate-to-severe anxiety (OR = 0.50, 95 % CI [0.29–0.85], p = .011), while occasional exercisers displayed a non-significant trend toward lower anxiety (OR = 0.46, 95 % CI [0.19–1.13], p = .090). Neither perceived disorganization of routine nor self-reported increase in social-media use (as opposed to quantified hours) reached significance for anxiety (both p > .05).

Table 5.19 Logistic regression predicting the likelihood of moderate-to-severe anxiety (vs. minimal-to-mild) from lifestyle patterns indicators

Variables	B	SE	OR	95% CI for OR	p-value
Q23: Less organized daily routine					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.545	0.309	1.724	0.94 - 3.16	0.078
Q24: Social media use increased					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.511	0.411	1.667	0.74 - 3.73	0.214
Q25: Spend more time indoors and have fewer physical activities					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.089	0.311	1.093	0.59 - 2.01	0.776
Q26: Irregular sleep hours					
Strongly Disagree/Disagree*	-	-	1.00	-	-
Strongly Agree/Agree	0.763	0.289	2.145	1.22 - 3.78	0.008*
Q27: Social media use (hours/day)					
<3 hours/day*	-	-	1.00	-	-
3-5 hours/day	0.839	0.312	2.314	1.26 - 4.27	0.007*

>5 hours/day	1.316	0.321	3.728	1.99 - 7	0.000*
Q28: Frequency of playing sports or exercise					
4-7 days/week	-0.776	0.458	0.460	0.19 - 1.13	0.090
Occasionally	-0.701	0.276	0.496	0.29 - 0.85	0.011*
Never*	-	-	1.00	-	-
Q29: Average sleep hours					
<5 hours*	-	-	1.00	-	-
5-7 hours	0.086	0.410	1.089	0.49 - 2.43	0.835
≥8 hours	0.242	0.439	1.273	0.54 - 3.01	0.582

Note: Dependent variable = Severity of anxiety (1 = Moderate-to-severe, 0 = Minimal-to-mild); This model was adjusted with Age, Gender, Location, Parental education, Parental occupation, etc.

*Reference category.

*Lifestyle Patterns variables with statistically significant results ($p < 0.05$).

SE = Standard Error; B = Coefficient; OR = Odds Ratio; CI = Confidence Interval for OR.

The detailed table is attached to Appendix III (Table 6).

These findings underscore the particularly strong roles of sleep regularity and intensive social-media engagement in both depression and anxiety, while also suggesting that the relationship between physical activity and anxiety may differ in direction and magnitude from its link to depression.

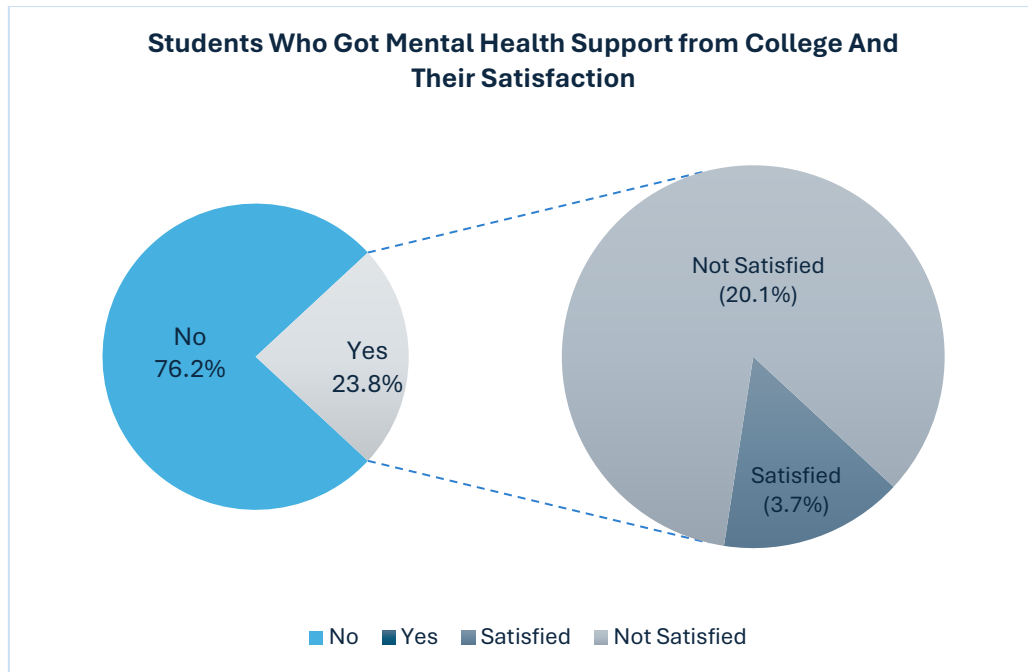
5.6 Institutional Support and Help-Seeking

The survey findings reveal that institutional support regarding mental health during the COVID-19 pandemic was relatively limited for the respondents. According to the data, only **23.8%** of the surveyed students ($n = 97$) reported that they had received any form of mental health-related support from their educational institutions. In contrast, a significant majority was **76.2%** ($n = 310$), indicated that they did **not** receive any such support.

Further analysis of the satisfaction levels among those who received institutional support indicates a notable gap in effectiveness (Fig. 5.10). Among the 97 students who received support, only **15.5%** ($n = 15$) expressed satisfaction. In contrast, **84.5%** ($n = 82$) reported dissatisfaction with the support provided.

Fig. 5.10

The percentage of students who got mental health support from their college and their satisfaction.



5.7 Coping Strategies Adopted by Students

In the absence of widespread institutional support, students adopted various self-directed coping mechanisms to manage stress, anxiety, and depressive symptoms during the COVID-19 pandemic. The data indicate that students primarily relied on informal strategies, particularly those involving interpersonal communication and recreational activities.

Table 5.20 shows that the most frequently reported coping mechanism was **talking with friends or family members**, chosen by **30.8%** of respondents. This highlights the importance of close personal relationships as a source of emotional support during times of crisis. Following this, **26.2%** of students coped by engaging in **social media or internet use**, and **15.9%** reported watching **television, movies, or sports** as their primary coping method.

A smaller proportion of students adopted more structured or proactive strategies. **Physical activity or exercise** was cited by **8.1%** of students, while **8.6%** sought **advice from teachers**. Only **4.2%** of students pursued **counseling with experts**, reflecting minimal use of professional psychological support. Additionally, **6.1%** of students indicated that none of the listed coping mechanisms applied to them.

Table 5.20: Coping strategies adopted by students

Cope with stress or depressive symptoms (Q34)	% of Students
Talking with friends/family	30.8%
Physical activities/exercise	8.1%
Social media/Internet use	26.2%
Watching TV/Movies/sports	15.9%
Counselling with Experts	4.2%
Get advice from teachers	8.6%
Not applicable	6.1%

5.8 Open-ended Questions Analysis

As part of this study, two open-ended questions were included in the survey to capture students' personal insights and experiences regarding educational practices and mental health support after the COVID-19 pandemic in Bangladesh. These questions aimed to explore students' perspectives beyond quantitative data, allowing for a more nuanced understanding of their needs and expectations. The first question asked, ***"What changes in educational practices do you think would support your mental well-being after COVID-19?"***, intended to elicit suggestions for reforming learning environments in ways that enhance psychological resilience. The second question, ***"Do you have any suggestions on how students' mental health can be improved in schools/colleges?"***, sought concrete recommendations for institutional or interpersonal strategies to promote student well-being.

Thematic analysis of responses was conducted through word frequency mapping (i.e., word cloud) and narrative interpretation, providing valuable insights into students' perceived challenges and proposed solutions. The findings presented below illustrate the most frequently mentioned themes and selected verbatim responses, which enrich the overall interpretation of the study results by offering contextually grounded and emotionally resonant viewpoints from the student respondents.

5.8.1 Changes in Educational Practices for Mental Well-Being

The responses to this question, *“What changes in educational practices do you think would support your mental well-being after COVID-19?”* were analyzed through a word cloud (Fig. 5.11) generated from open-ended suggestions provided by students. The most prominent themes that emerged include “Supportive Teacher,” “Less Pressure,” “Effective Curriculum,” “Friendly Teacher,” “Peer Support,” “Mental Health Awareness,” and “Extracurricular-Cocurricular Activities.” These keywords reflect the students’ need for a more empathetic, balanced, and engaging learning environment. The repeated mention of “less pressure” indicates a widespread concern over academic burden, which many students perceive as detrimental to their mental well-being. Similarly, the emphasis on “effective curriculum” and “blended learning” suggests that students are calling for more meaningful, interactive, and flexible instructional strategies, rather than rote memorization and exam-centric approaches.

Figure 5.11:

A word cloud of students’ own suggestions for improving mental health and education.

These responses highlight the significance of recognition, empathy, and appreciation in shaping adolescents' self-esteem and psychological well-being.

Other students suggested that family-related pressures are a major contributor to distress. One candid response stated, *"Most of the students' mental pressure forms from their family problems...some parents are too strict...they forget that education is for life, not life for education."* This sentiment is echoed by others who recommend parental guidance seminars and family engagement programs to bridge communication gaps. Institutional changes such as incorporating mental health education in the national curriculum, hiring counselors, discouraging memorization-based learning, and shifting focus from certificates to career readiness were also advocated. Together, these insights reflect students' awareness of both individual and structural factors impacting mental health, and their call for reforms that blend emotional intelligence, systemic flexibility, and accessible support within educational institutions in Bangladesh.

5.9 Summary

This chapter presents the findings of a comprehensive survey on the mental well-being of higher secondary students in Bangladesh following the COVID-19 pandemic. Based on data from 407 students aged 15–18, the study explores demographic profiles, social capital, academic performance, lifestyle changes, and mental health conditions of higher secondary students in Bangladesh. The survey results reveal that a significant proportion of students, particularly those from modest socio-economic backgrounds, exhibited moderate to severe symptoms of depression and anxiety, as measured by the PHQ-9 and GAD-7 scales. Disruptions in academic engagement, lifestyle routines, and social interaction patterns were strongly associated with deteriorating mental health.

Students experienced a marked decline in academic performance, with most reporting difficulty concentrating and reduced study hours. Lifestyle changes included irregular sleep, increased screen time, decreased physical activity, and a less structured daily routine. Social capital weakened, especially in peer

relationships, though familial bonds showed some resilience. Moreover, institutional support for mental health was notably lacking, with the majority of students reporting no access to such resources and expressing dissatisfaction among those who did receive support.

Despite these challenges, students predominantly relied on informal coping strategies such as communication with friends and family, and digital entertainment, with minimal recourse to professional counseling. These insights underscore the urgent need for structured mental health support systems and targeted interventions to restore academic stability, healthy lifestyles, and psychological resilience among adolescents in the post-pandemic context.

CHAPTER SIX: DISCUSSION AND CONCLUSION

6.1 Introduction: Overview of Key Findings and Context

The present study investigated factors influencing depressive symptoms and anxiety disorders among higher secondary (HSC) students in post-COVID Bangladesh, guided by a conceptual framework that posited socio-economic context, social capital, academic factors, and lifestyle patterns as key determinants. Consistent with expectations, the prevalence of mental health problems in our sample was alarmingly high: nearly 62% of students reported at least moderate depressive symptoms, and about 46% had moderate to severe anxiety, based on PHQ-9 and GAD-7 scores. These rates far exceed pre-pandemic levels of adolescent depression (~30%) and anxiety (~16%) in Bangladesh, reflecting the pandemic's harsh impact (Abdullah et al., 2024). Notably, urban students showed higher depression or anxiety severity than rural students, and over two-thirds of respondents perceived that changes in lifestyle and academics during COVID-19 worsened their mental well-being. In the sections below, we discuss our literature for each research question and hypothesis theme, that is, socio-demographic context, social capital, academic achievements, and lifestyle patterns, and interpret them relative to the literature. We then address the implications of these findings, acknowledge the study's limitations, suggest avenues for future research, and finally provide recommendations for policy and practice in Bangladesh.

6.1.1 Socio-Demographic Context and Mental Health (H1)

Our first hypothesis (H1) proposed that **lower socio-economic status would be associated with worse student mental health**. The data offered *partial support* for this. **Location** emerged as a significant factor: *urban students had markedly higher rates of depression and anxiety than rural students* (e.g. 69.7% of urban students vs. 55.2% of rural students had moderate-to-severe depression, $\chi^2 p = .002$). Anxiety showed a similar pattern (53.8% urban vs. 38.7% rural moderate-to-severe, $p = .002$). This urban–rural disparity aligns with recent findings among Bangladeshi

youth. For example, a 2023 national survey of university-entrance students found that *urban residence was associated with increased depression and anxiety*, and over half of those students suffered depression (Abdullah et al., 2024). Urban adolescents may have experienced more intense academic pressure and social isolation during lockdowns (due to tighter restrictions in cities), contributing to higher distress. In contrast, rural students, while facing other hardships, might have benefited from more outdoor space or community engagement, possibly buffering mental strain.

Socio-economic hardship was also a clear underlying theme. Students whose **fathers were unemployed or in unstable private-sector jobs** reported significantly higher depression and anxiety ($p = .008$ and $.003$, respectively). This suggests that *family economic insecurity* during the pandemic, such as job loss or financial strain, translated into psychological stress for students. Indeed, nationwide data show over 73% of Bangladeshi households faced severe financial difficulties due to COVID-19, including job losses and business closures. Such **economic shocks** likely elevated adolescents' anxiety about family well-being and their own future. Prior research confirms that family financial stress and parental unemployment can worsen youth mental health; for instance, job losses in the family have been linked to higher anxiety among Bangladeshi students. One student's comment poignantly illustrated this dynamic: *"Most of the students' mental pressure forms from their family problems. Specifically, financial & social insecurities... as a result it affects everyone in the family."*

Interestingly, **household income level and parental education** did *not* show significant associations with depression or anxiety in our study ($p > .5$). This may indicate that mental health challenges during this period cut across economic classes, even students from middle-income or well-educated families were vulnerable. Alternatively, it might reflect that **income alone is a blunt proxy**; more immediate factors like parental employment status or daily hardships are better indicators of stress. **Gender** was likewise not significant ($p = .809$ for depression), implying that *male and female students were equally affected* by depressive or

anxiety symptoms in this cohort. This contrasts with some pre-pandemic studies where adolescent girls often reported higher depression (Afrin et al., 2022). It also diverges from a recent survey of Bangladeshi college applicants, which found males had *higher* depression or anxiety than females (Abdullah et al., 2024). Our finding suggests that in the unique context of prolonged school closures and lockdowns, mental health risks were pervasive and not limited to one gender. Both boys and girls experienced isolation, academic disruption, and uncertainty, leveling traditional gender differences in distress.

Overall, these results confirm that **environmental context matters** for student mental health (supporting H1); being in an urban, high-pressure environment and having an economically strained home life significantly elevated the risk of depression and anxiety. This echoes the literature that **socio-economic and contextual adversities are “upstream” determinants** of youth mental health. High poverty, weak social safety nets, and family financial instability, all present in Bangladesh’s pandemic aftermath, are known to heighten adolescent depression and anxiety. Our study reinforces the importance of addressing these contextual factors. Interventions cannot focus only on individuals; **systemic inequalities and family stress** must be mitigated to improve student well-being. For instance, providing financial aid or counseling to families facing hardship could indirectly support students’ mental health. As one student observed, parental expectations and economic worries can create intense pressure: *“My parents...make me feel uncomfortable with myself...They want me to be a doctor or engineer... I love them but... I am allowed to choose my career. I want them to understand.”*. Such testimony highlights how socio-economic aspirations and family pressures intertwine, suggesting the need for **parental awareness programs** to reduce undue stress on teens.

6.1.2 Social Capital and Mental Well-Being (H2)

The second hypothesis posited that **greater social capital, i.e., stronger social ties, support, and sense of belonging, would correlate with lower depression and anxiety**. Our findings strongly uphold this. Multiple indicators of diminished social

capital were significantly associated with worse mental health. Students who reported *feeling less connected to friends since COVID-19* had higher depression ($p = .046$) and anxiety ($p = .007$). Likewise, those who had *fewer opportunities for social interaction* (e.g., unable to meet friends or join activities) showed higher depression ($p = .003$) and anxiety ($p = .002$). A *decline in community belonging* was also linked to elevated depression ($p = .025$) and anxiety symptoms ($p = .004$). In contrast, an *improvement in family relationships during the pandemic* emerged as a protective factor, students who grew closer to their family had significantly lower depression ($p = .015$) and anxiety ($p = .001$) levels. Notably, the frequency of in-person interaction **before** COVID did not predict current mental health, but a **reduction in interaction after COVID** did correlate with higher depression. This suggests it was the *change* or loss of social connections post-pandemic that mattered most for students' well-being.

These results align closely with the literature on the mental health value of social support and connectedness. **High social capital has consistently been found to buffer against adolescent depression and anxiety**, whereas social isolation and low support exacerbate distress. For instance, Mori et al. (2022) observed that school-aged children with greater individual-level **school social capital** (peer and teacher support) had significantly lower depression and better quality of life. Similarly, a cross-national study of 4,228 college students across 12 countries found that lower cognitive and behavioral social capital was associated with increased depressive symptoms. Our data support these patterns: Bangladeshi students who lost the camaraderie of friends, classmate interactions, and community engagement during COVID-19 were more prone to depression or anxiety. **Prolonged school closures and “social distancing” clearly eroded youth social capital**, as students could not gather with friends, play sports, or participate in cultural activities for many months. The consequence, as Elmer et al. (2020) documented in Switzerland, was a spike in loneliness and mental health issues when comparing student networks before vs. during lockdown. In our context, over half of the respondents agreed they had fewer chances to socialize post-COVID, and nearly half felt a weakened sense of community belonging. One can infer that *peer support networks*

and extracurricular engagement shrank, removing vital outlets for stress relief and identity formation.

On the other hand, many students spend more time with their families during lockdown. Encouragingly, about 69% reported their relationship with family **improved** after COVID-19. This aligns with reports that some families grew closer amid the crisis. Our finding that stronger family bonds corresponded to lower depression or anxiety underscores the **protective power of family social capital**. Close-knit family support likely provided emotional comfort and stability during chaotic times. Prior studies likewise note that **social support from family can mitigate adolescent mental health problems**. For example, Sotaquirá et al. (2022) found that high social capital, including *trust and support in family and community*, protected Colombian university students against depression and anxiety. In Bangladesh's collectivist culture, family is a primary support system; thus, when those relationships are positive, they serve as a critical coping resource.

Beyond statistical data, the **qualitative comments from students poignantly illustrate the social factors** at play. Many students yearned for better communication and understanding from their social circles. For instance, one student wrote: *"I want my teachers & my friends to communicate & have fun at least one day a month... Not just giving us suggestions without asking about problems. A random talk about our life must play a good role."* This plea highlights the need for *open conversations and trust* between students and mentors/peers, rather than a one-way flow of advice. Another student emphasized how desperately they seek encouragement: *"We already have so much pressure in our studies... the best thing people around us can do is make us feel confident. No matter what, we need to feel we are enough to achieve our dreams. Honestly, I love myself, but people around me, even my family, sometimes make me feel uncomfortable... that must be stopped."* These voices echo a common theme; adolescents crave **emotional support, empathy, and validation** from parents, friends, and teachers. **Social capital is not merely structural (having people around) but also qualitative (feeling understood and valued)**. Lack of praise, excessive criticism,

and stigma (e.g., shaming students for their problems) were mentioned as aggravating factors. For example, one respondent noted some teachers “shame us for having a problem or for not being able to solve [a] problem”, which could deter students from seeking help and worsen their isolation.

In summary, our results strongly affirm H2; **stronger social connectedness correlates with better mental well-being**, whereas social isolation and weakened support heighten risk. This finding aligns with the broader evidence that the pandemic’s assault on *social capital* (through school closures, quarantines, etc.) fueled a mental health crisis among youth. The implication is that **rebuilding social capital is essential for recovery**. Schools and communities should prioritize restoring peer interactions, group activities, and supportive teacher–student relationships. As Pitas and Ehmer (2020) observed, communities with high social capital weather crises more effectively than those with low social capital. Likewise, our study suggests that fostering social bonds (through, say, clubs, teamwork, or family engagement) can help inoculate students against psychological distress. We return to this point in the Recommendations, where strategies like *peer support groups*, *mentoring programs*, and *family engagement initiatives* are suggested to strengthen the social safety net around students.

6.1.3 Academic Achievements and Mental Health (H3)

The third hypothesis (H3) posited that **higher academic achievement would be associated with lower depression and anxiety**. Our findings nuanced this expectation by distinguishing between **objective academic performance** (grades) and **subjective academic experiences** (study habits, perceived learning). Overall, *actual exam results (GPA)* showed weak or no correlation with mental health, most GPA categories were not significantly linked to depression or anxiety, except that a low first-year GPA had a modest association with higher depression ($p = .038$) and a GPA < 3.0 was linked to higher anxiety ($p = .014$). However, **subjective academic difficulties were strongly related to mental distress**. Students who spent *fewer than 2 hours/day studying* had dramatically higher depression and anxiety ($p < .001$ for both), as did those reporting *increased difficulty concentrating*, a *perceived*

decline in academic performance, or disruption of studies due to online classes (all $p < .001$). In other words, *feeling academically behind or struggling* was a clear risk factor for poor mental well-being, more so than any particular grade or outcome. This strongly supports the hypothesis that academic factors are linked with mental health, albeit highlighting *academic engagement and confidence* rather than raw achievement.

This finding resonates with educational psychology research. It is well-documented that **academic stress and perceived failure contribute to depression and anxiety in adolescents**. The **bidirectional relationship** is also recognized; depression can impair concentration and motivation, leading to poorer academic performance, which in turn fuels more distress, a vicious cycle (Gaspar de Matos et al., 2008; APA, 2000). Our data illustrates this cycle; students who struggled to focus on studies or felt their performance slipped during the pandemic were significantly more likely to score high on depression or anxiety scales. Indeed, *72.2% of our respondents agreed that lifestyle changes after COVID (including study disruptions) increased their depressive or anxious symptoms*. Qualitatively, students expressed how **immense academic pressure and fear of falling behind weighed on their mental state**. One student shared: “*We all have potential in different sectors... I want my teachers to help us when we are in problems, not shame us... [Some students] are suffering from depression.*”. Another bluntly stated: “*Bangladeshi education is not good... Memorizing the whole syllabus is not a good thing. It is harming our brain and destroying our creativity.*”. Such comments underscore that **rote, high-pressure academic culture** and lack of support for struggling students can exacerbate mental health issues. Excessive curriculum content and exam focus, especially when delivered via remote learning, likely left many feeling “lost” academically during the pandemic.

The literature review provides further context. The sudden shift to online learning in 2020-21 *severely disrupted study habits and motivation* for many students. Acheampong (2023) reported that about 70% of Ghanaian students felt demotivated and had trouble meeting deadlines in online classes, citing low self-

discipline and lack of peer interaction, which hurt their academic performance. In Bangladesh, the abrupt introduction of “auto-promotion” and abridged curricula meant some cohorts did not sit full exams for HSC, which, while avoiding exam stress, introduced **academic uncertainty and skill gaps**. One news report quoted a student: *“The uncertainty and constant changes in the government’s decision-making process have taken a toll on our mental well-being... causing significant stress and emotional strain”*. This unstable academic environment may explain why our respondents who *perceived a decline in learning or had concentration trouble* felt distressed; they likely experienced real learning losses or gaps in understanding due to the pandemic’s academic disruptions. Quintiliani et al. (2021) similarly found that stress from distance learning significantly reduced students’ learning and well-being. Moreover, studies note that the **increased screen time and social media use associated with online study** contributed to mental health issues. In our study, students who struggled with online class disruptions had higher depression or anxiety, which aligns with evidence that the e-learning context (especially in resource-limited settings) can be frustrating and isolating (Mozid, 2022; Monir et al., 2024).

It is also noteworthy that **academic dissatisfaction and mental health issues were intertwined** in prior Bangladesh-based research. For example, Billah et al. (2023) observed that university students’ *dissatisfaction with academic performance contributed to stress and anxiety*, especially when coupled with limited social support. Our data echo that; a student who believes they are “lagging behind” or not meeting expectations is likely to feel anxious and depressed, particularly in a competitive academic culture. That said, the *lack of correlation between absolute GPA and mental health* in our results suggests that even high-performing students were not immune, they may still have experienced intense stress or burnout not reflected in grades. In fact, some top students might have felt even more pressure to maintain performance in adverse conditions. Conversely, some low-GPA students might have had resilient coping or external support. Thus, it is the **subjective academic experience; feeling overwhelmed, unable to study, or unengaged that more directly signals mental strain**. This nuance supports H3

while refining it; *academic well-being* (feeling competent and supported in learning) is crucial for mental health, perhaps more so than exam scores per se.

In conclusion, our findings concur with H3 by demonstrating a strong link between academic factors and mental health, especially highlighting that **academic struggles and perceived decline are red flags for depression or anxiety**. The implication is that **educators and policymakers must pay attention to students' academic confidence and support needs, not just their grades**. Interventions like tutoring, study skills workshops, reasonable curriculum adjustments, and mental health literacy for both students and teachers could alleviate the academic stress that feeds into psychological distress. As the American Psychiatric Association (2000) noted, depression in students can impair multiple domains of functioning and lead to serious academic and psychological consequences. Therefore, addressing academic problems (e.g., through *counseling or mentoring for struggling students*) is a key component of promoting mental well-being.

6.1.4 Lifestyle Patterns and Mental Health (H4)

The final hypothesis (H4) asserted that **healthier lifestyle patterns (regular routine, physical activity, moderated screen time, etc.) would associate with lower depression and anxiety**, whereas unhealthy patterns would predict higher mental health problems. Our results provide robust support for H4. We found that a variety of lifestyle disruptions post-COVID were significantly linked to worse mental health outcomes. Students who reported a *disorganized daily routine* after the pandemic had much higher depression and anxiety levels ($p < .001$). Similarly, those with *increased social media use* were more likely to be depressed or anxious ($p < .001$). *Decreased physical activity* was a strong predictor of both depression ($p = .002$) and anxiety ($p < .001$). **Irregular sleep patterns** (e.g. poor sleep or inconsistent sleep schedule) were also highly correlated with elevated depression and anxiety ($p < .001$). In essence, students who have fallen into sedentary lifestyles, excessive screen time (especially >5 hours/day on social media), and disrupted sleep cycles were far more prone to psychological distress. These findings confirm

that **post-pandemic lifestyle changes played a critical role in adolescents' mental health**, aligning with the hypothesis and existing evidence.

The pandemic upended the daily habits of students worldwide, and Bangladesh was no exception. With schools closed and mobility restricted, many youths lost their structured routines; waking up late, skipping meals or overeating, lacking exercise, and spending long hours online became common (Ferdous et al., 2024). For instance, a national study found **screen time among Bangladeshi adolescents more than doubled during lockdown**, with those spending >5 hours/week on entertainment screens rising from 12% pre-COVID to 27% during lockdown. Our findings mirror this; a large proportion of students in our survey evidently turned to social media and internet use, which correlated with their higher depression and anxiety. Research by Fruehwirth et al. (2024) helps explain this link, they found that college students who **increased social media use by 1+ hour, 18 months into the pandemic, were much more likely to be depressed and anxious**, likely because excessive social media displaced healthy activities (like exercise) and increased peer comparison stress. In Bangladesh, **internet overuse and disrupted sleep were widely reported** during school closures, contributing to what one study called “*an imbalance in cognitive health status*”. Students would stay up late scrolling on phones and then struggle with daytime fatigue and mood swings. Our data strongly connect *irregular sleep* with mental health problems, reflecting known bi-directional effects: poor sleep can exacerbate depression/anxiety, and those conditions in turn can disturb sleep (Cassady et al., 2019). Indeed, inadequate sleep impairs emotional regulation in adolescents, making them more vulnerable to stress and academic difficulties.

Physical inactivity is another key piece. With sports and outdoor play curtailed, many students became largely sedentary at home. Only 13.5% of Bangladeshi teens exercised >3 times/week during lockdown, barely up from 8.2% pre-COVID. Our study found that *reduced physical exercise and sports participation* were strongly tied to higher depression/anxiety ($p < .001$). This aligns with prior findings that *lack of exercise creates a vicious cycle with stress*, leading

to poorer mental health. For example, Gewalt et al. (2022) reported that German students who remained sedentary had worse mental health outcomes during the pandemic, and a Bangladeshi web survey by Islam et al. (2020) found depression and anxiety were more prevalent among students who did no physical exercise. On the flip side, research consistently shows exercise can be protective; Sotaquirá et al. (2022) noted that university students doing moderate-to-vigorous physical activity had significantly fewer depressive symptoms. Even in our sample, those who maintained some exercise likely fared better than those who stopped entirely. Unfortunately, many lost access to sports/games, and the resulting “*lack of stress relief outlets*” contributed to emotional turmoil.

Finally, **routine disorganization** encapsulates how daily life structure broke down. Regular meal times, study times, and sleep schedules were replaced with chaos for many teenagers. The loss of routine can increase feelings of aimlessness and anxiety. A student’s comment reflects this: “*Every institution should have various activities to keep students engaged – it will help them relieve their daily stress.*”. This suggests that when left with unstructured time, students can ruminate on worries, whereas engaging in routines (classes, clubs, hobbies) keeps them mentally healthier. **Academic routines and lifestyle routines are interdependent**; as noted earlier, difficulty concentrating and irregular study were linked to depression, which are partly consequences of lifestyle disruptions (like erratic sleep or incessant device use). A study in China (Ahmed et al., 2020) found young adults (21–40) in lockdown were more psychologically vulnerable, partly due to irregular lifestyles and social isolation. Our data for adolescents is analogous.

In summary, the evidence strongly supports H4; **negative lifestyle changes during the pandemic, including sedentariness, excessive social media, disrupted routines, and poor sleep, significantly contributed to higher depression and anxiety among students.** Conversely, maintaining or restoring healthy habits is likely beneficial for mental well-being. The clear message is that **mental health promotion for youth must include a lifestyle component.** Interventions might include encouraging regular exercise (even simple home

workouts), promoting good sleep hygiene, moderating recreational screen time, and helping students re-establish daily schedules. Even small lifestyle adjustments can potentially yield mental health benefits (Huckins et al., 2020; Lin & Gao, 2023). Our study reinforces calls for an integrative approach; tackling adolescent depression or anxiety isn't just about therapy or counseling in isolation, it also requires **supporting healthy lifestyles and routines** as students continue to adapt post-pandemic.

6.2 Implications of Findings

Theoretical and practical implications emerge from this study. Theoretically, our results validate the **conceptual framework** that multiple domains; social environment, academic life, and personal lifestyle, collectively influence adolescent mental health. This aligns with an ecological or systems view of student well-being; depression and anxiety are not caused by a single factor but arise from an interplay of **contextual, relational, and behavioral factors**. The findings highlight that **protective factors** (like family support, physical activity, structured routines) can buffer stress, whereas **risk factors** (like isolation, academic strain, unhealthy habits) compound it. Such insight supports holistic mental health models and suggests that interventions should target multiple levels (individual coping skills, family dynamics, school climate, and societal supports) rather than narrowly focusing on one aspect. It also contributes to literature by providing data on **post-COVID higher secondary students in a developing country**, a context less studied compared to university students in developed nations. We confirmed that many patterns observed elsewhere (e.g., the co-occurrence of depression and anxiety, or the benefits of social capital) hold true in Bangladesh, but also note context-specific nuances (e.g., urban students faring worse despite presumably greater resources, possibly due to higher competition and digital penetration). This underscores the importance of contextualizing mental health research within cultural and socioeconomic settings.

Practically, the study's outcomes carry **policy and intervention implications** for educational authorities, mental health professionals, and

communities in Bangladesh. First and foremost, the **high prevalence of depression and anxiety among HSC students (over half showing moderate-to-severe symptoms)** is a clarion call that adolescent mental health needs urgent attention as part of post-pandemic recovery. Left unaddressed, this could hinder not only individual students' academic and life trajectories but also Bangladesh's broader goals (e.g., maximizing the demographic dividend of its large youth population). Our findings that urban students and those from financially stressed families are at greater risk suggest that **resource allocation should prioritize high-need groups**; for example, urban schools (especially in densely populated cities like Dhaka) might require more counselors and programs, and scholarship or financial aid programs might indirectly ease student anxiety by reducing economic pressures at home.

The clear role of **social connectedness** implies that schools should be more than academic factories; they must foster a supportive community. This could involve teacher training to be sensitive to mental health, establishing mentor-mentee systems, or simply scheduling time for students to socialize and discuss issues (as one student recommended, a monthly informal meet-up). Moreover, enhancing **family-school partnerships** is vital. Parents need awareness about the mental health fallout of overbearing expectations and punitive parenting. Students' remarks that some parents *"forgot that education is for life, not life for education"* and that constant comparison or judgment by relatives hurts their self-esteem point to the need for parental education. Thus, an implication is that **mental health literacy campaigns** should extend to parents and guardians, helping them create a nurturing environment that values effort and well-being over grades alone.

The importance of **academic support and flexibility** is another implication. Educational policymakers may consider adjustments such as reducing syllabus overload (continuing the simplifications started during COVID), incorporating mental breaks, and avoiding a one-size-fits-all approach to achievement. Our data showing the struggle and perceived failure that correlate with depression suggests that interventions like tutoring, remedial classes, or alternative pathways for

students who fall behind could alleviate a lot of anxiety. It also implies that **exam-centric culture needs reform**; students should not feel their entire future hinges on one high-stakes exam, a mindset that COVID's disruptions only exacerbated. Some students explicitly called for focusing *“less on certificate, more on career”* and critical skills, indicating a desire for a more meaningful and less stressful education system.

Finally, the lifestyle findings imply that the **health and education sectors must collaborate**. Promoting healthy behaviors (exercise, sleep, moderate tech use) could be integrated into school programs. For instance, regular physical education (often neglected in the Bangladesh context) should be mandatory and taken seriously as a mental health investment. Counseling and workshops on digital well-being could help students manage social media and online time better. The government and schools might also need to consider guidelines or policies around digital device use among teens, for example, educating about the risks of excessive social media, as also highlighted by the U.S. Surgeon General's advisory (Fruehwirth et al., 2024). Additionally, mental health should be mainstreamed into the curriculum; encouragingly, Bangladesh's authorities are already moving in this direction by **integrating psychosocial well-being into the national curriculum transformation** with UNICEF's support (UNICEF, 2023). This will help raise awareness among students from a young age about coping strategies, resilience, and when or how to seek help.

In sum, our research implies that to address student mental health, a **multi-pronged strategy** is required: strengthening social support systems, reforming academic practices, and encouraging healthy lifestyles. This integrated approach is further reflected in our recommendations below, which are tailored to Bangladesh's context. The next section builds on our findings to propose concrete recommendations for stakeholders.

6.3 Recommendations for Policy and Practice: Bangladesh Context

In light of the findings, we propose a set of comprehensive recommendations targeting education policy, school-level practices, national mental health strategies, family engagement, and technology use, all tailored to the Bangladeshi context. These recommendations aim to mitigate the identified risk factors (social isolation, academic stress, unhealthy lifestyles) and strengthen protective factors (support networks, healthy routines, coping resources) for higher secondary students' mental well-being. The word cloud illustrates key themes from open-ended student responses, highlighting the importance of *supportive teachers*, *friendly relationships*, *counseling*, *extracurricular activities*, *mental health awareness*, and reduced academic *pressure*. We incorporate these voices into the recommendations below:

Firstly, mental health education must be integrated into Bangladesh's national educational curriculum. The Ministry of Education should embed lessons on emotional well-being, stress management, and coping strategies in compulsory textbooks, as students strongly advocate. A shift from rote memorization and high-stakes testing toward continuous assessment and practical skills is essential to reduce student stress. Evaluating and institutionalizing beneficial curriculum changes would enhance long-term student mental health.

Secondly, establishing school-based counseling services is critical for student well-being. Each higher secondary school or college should have trained counselors or psychologists available, initially piloted through sharing resources across multiple schools. Teachers, often students' first contacts, must receive training in mental health first aid to provide empathetic support rather than criticism. Creating a supportive school culture with peer mentorship and regular mental health discussions would ensure students feel safe seeking assistance.

Thirdly, increasing extracurricular and co-curricular activities is vital to rebuilding social capital among students. Schools should dedicate regular weekly hours for clubs, sports, arts, and community service activities to improve peer connections and reduce isolation, especially in urban setting institutions. Facilitating peer support groups can encourage open sharing of mental health

concerns and strategies among students. Informal, friendly interactions between teachers and students, such as monthly "tea and talk" sessions, can further foster a sense of community.

Fourthly, implementing a National Adolescent Mental Health Strategy can address broader mental health issues systematically. This strategy should involve collaboration across education, health, youth, and ICT sectors to enhance awareness, establish youth-focused crisis support, and train community-based mental health workers, particularly in rural areas. Addressing the shortage of mental health professionals through targeted training and incentives is essential for sustainability. Incorporating student voices through youth advisory panels will ensure relevant, effective interventions.

Fifthly, enhancing family engagement through targeted parenting education can positively impact on student mental health. Schools should regularly organize parental guidance seminars promoting positive parenting practices, effective communication, and mental health awareness. Family counseling services could be provided to address specific household stressors. Broader societal campaigns involving respected community and religious leaders can reinforce compassionate, supportive parenting approaches, shifting societal norms away from harmful competitive pressures.

Finally, regulating technology use and promoting digital literacy is essential for managing adolescents' mental health. Educational institutions should offer training on balanced digital usage, teaching students how to self-monitor and limit excessive social media engagement. Collaborations with tech companies to run public awareness campaigns can encourage healthier digital behavior. Encouraging screen-free extracurricular activities, like outdoor sports or creative hobbies, provides positive alternatives, improving overall mental and physical health.

In implementing these recommendations, it's crucial to adopt a **context-sensitive approach**. Bangladesh's resource constraints mean interventions should

be cost-effective and scalable. The recommendations cover **school-level changes (curriculum, counseling, activities), family and community initiatives (parent seminars, awareness), and national policy (strategy, regulation)**; reflecting the multi-layered nature of the problem. Crucially, these efforts should proceed in parallel; a policy is only as good as its execution on the ground, and ground-level programs benefit from an enabling policy environment.

6.4 Limitations and Future Research

While this study yields valuable insights, several limitations must be acknowledged. **First**, the design was **cross-sectional**, capturing a snapshot in time. Thus, we cannot definitively establish causality; for example, whether increased social media use caused higher depression, or whether students who were depressed tend to use social media more. Longitudinal studies would be beneficial to track changes and directional effects, e.g., following students over their HSC years to see how changes in lifestyle or social connections predict mental health trajectories.

Second, our data relied on **self-reported questionnaires**. Responses to sensitive items (like mental health symptoms or family issues) may be subject to social desirability or recall bias. We attempted to mitigate this by assuring anonymity and using validated scales (PHQ-9, GAD-7), but some underreporting or overreporting could occur. Incorporating qualitative interviews or clinical assessments in future research could provide a richer, cross-validated understanding of student mental health.

Another limitation is that our sample, while large (N=407) and diverse in gender and locale, is not fully **representative of all Bangladeshi HSC students**. The sample slightly overrepresented female and rural students (about 64% female, 52% rural) relative to national enrollment which is ~50% female and predominantly urban at the college level. This may have influenced results; for instance, if more rural students were included, the urban-rural differences might be even more pronounced, since our rural subsample might understate issues due to potentially stronger community ties.

Additionally, we focused on HSC (higher secondary) students aged 15–18; findings may not generalize to younger secondary students or to tertiary-level students. Future studies could compare across age groups to see if younger adolescents face similar issues or if certain factors (e.g., social media use) have different impacts by age.

The study also **did not extensively probe some factors** that could be relevant. For example, we did not differentiate types of social media or content consumed, which might matter; some online activities (like learning forums) could be positive, while doom-scrolling is negative. Nor did we measure certain protective factors like coping styles, religiosity, or personality, which might moderate outcomes. Incorporating such variables could refine the model of what buffers or exacerbates pandemic-related stress.

Moreover, our quantitative approach could be complemented by **qualitative research** to delve into why certain factors had the effects they did. The open-ended comments we collected hint at complex dynamics, like the role of parental expectations or the emotional needs for praise and understanding. **In-depth interviews or focus groups** with students, parents, and teachers could explore these themes, yielding deeper insight into how to tailor interventions.

Despite these limitations, the study opens several **future research opportunities**. One avenue is to conduct **intervention studies**; for instance, implement a school-based counseling program or a peer support group and measure its effect on student mental health over time. Our data provides baseline associations, but testing solutions would offer practical guidance. Another area is exploring **digital interventions** (e.g., app-based counseling or psychoeducation) since technology is ubiquitous; careful research could determine if the same devices that contribute to problems might also deliver help, especially in contexts with few mental health professionals. Additionally, given that global crises may recur, research on **resilience factors**, why some students coped better than others, would be valuable. In our survey, roughly 10% reported minimal depressive symptoms

despite the adverse context. Studying those who thrived or remained well could identify resilience traits or supportive conditions that can be bolstered in others.

Finally, comparative studies between countries or regions could shed light on cultural factors. Bangladesh's students have some unique stressors (e.g., extreme exam competition, frequent disruptions in education policy as seen in 2020–24 auto-promotion episodes). Comparing their experiences to, say, students in countries with different educational systems or pandemic responses might highlight which stressors are universal versus context-specific.

In conclusion, while this work provides an important initial picture of post-COVID mental health drivers in Bangladeshi youth, ongoing research is needed to address the limitations and to inform evidence-based strategies.

6.5 Conclusion

By pursuing the recommendations, Bangladesh can move toward a preventive, supportive framework that not only addresses the current mental health challenges among students but also builds resilience for future crises. The overarching goal is to ensure that the nation's youth are healthy, supported, and empowered, turning the post-COVID “mental health crisis” into an opportunity to overhaul and strengthen the systems that support adolescent well-being. As one student eloquently expressed a patriotic hope: *“I am a Bangladeshi. I love my country... I want my country to go forward.”*. Supporting our students' mental health through thoughtful policy and community action is indeed a vital step for the country to move forward with a strong, capable young generation.

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Appendix I:

Consent Letter and Survey Questionnaire

Letter of Approval/Consent

Date:.....

Principal

(Name of the educational institution)

Dear Sir,

I am currently studying for a master's in public policy at Meiji University, Japan, under the JDS scholarship. I am preparing to begin work on a research project for my dissertation phase. The topic of my dissertation is "The Factors Influencing the Depressive Symptoms and Mental Well-being of Higher Secondary Students of Bangladesh after COVID-19." As the topic is about students' perceptions, I would like to ask your permission to allow me to collect the data from the students of this esteemed institution.

The data collection will be conducted through a survey questionnaire using a Google link or a hard copy. The survey will take about 10-15 minutes. It would be sent according to the participants' convenience. Participation is entirely voluntary, and there are no known or anticipated risks to participation in this study. All information provided will be kept confidential and will be used only for academic purposes. The names of the respondents and the name of the college will not appear in any thesis or publications resulting from this study unless agreed to. Any information I present will not be linked to any personal information that could be used to identify individual students. I am confident that I have taken the necessary steps to ensure that my research will be conducted in ways that meet ethical standards.

Please sign the letter below and return a copy of this letter to me, indicating whether you have permitted me to collect the data from the students.

I appreciate your consideration.

Sincerely

Nusrat Jahan Tania

Master's in public policy

Meiji University

Email: nests.tania@gmail.com

Approved By
Principal

(Name of the college)

Signature

Date

Survey Questionnaire

The survey questionnaire was divided into eight (8) different sections to collect data from the respondents, which are given below.

Section 1: Demographic Information

1. Age *
 - ☐ 15
 - ☐ 16
 - ☐ 17
 - ☐ 18
2. Sex *
 - ☐ Male
 - ☐ Female
 - ☐ Others
3. Area of Educational Institution*
 - ☐ Division/ City/Urban
 - ☐ District/Upazila/Village/Rural
4. Family's approximate monthly income*
 - ☐ <10000 Taka
 - ☐ 10000-20000 Taka
 - ☐ 20000-30000 Taka
 - ☐ 30000-40000 Taka

- 40000-50000 Taka
- 50000-60000 Taka
- 60000-70000 Taka
- 70000-80000 Taka
- > 80000 Taka

5. Father's Educational Qualification *

- Primary Education
- SSC
- HSC
- Graduation
- Post-Graduation

6. Mother's Educational Qualification *

- Primary Education
- SSC
- HSC
- Graduation
- Post-Graduation

7. Father's Occupation *

- Government Service
- Teacher (School, College, University)
- Doctor
- Engineer
- Business
- Agriculture and Fisheries Related
- Residing abroad
- Private sector service (Banker, NGO's and others)
- Unemployed

- None

8. Mother's Occupation *

- Government Service
- Teacher (School, College, University)
- Doctor
- Engineer
- Business
- Agriculture and Fisheries Related
- Homemaker
- Private sector service (Banker, NGO's and others)
- None

Section 2: Social Capital

9. I feel less connected to my friends compared to before covid-19*

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

10. My relationship with family members has improved after covid-19 (spending family time/ gossiping/ working together/ traveling etc.)

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

11. I have fewer opportunities for social interaction compared to before Covid-19. *

- Strongly Disagree
- Disagree

- Agree
- Strongly Agree

12. My sense of belonging to my community has declined since COVID-19 *

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

13. Before Covid-19, how often did you interact socially (eg, meeting friends, participating in the community programs, etc.)? *

- Very often
- Weekly
- Monthly
- Rarely

14. After Covid-19, how often did you interact socially (e.g., meeting friends, participating in community programs, etc.)? *

- Very often
- Weekly
- Monthly
- Rarely

Section 3: Academic activities and achievements

15. What year/class are you currently studying?*

- First Year
- Second Year

16. My academic Results*

For 1st Year Student:

	GPA 5	GPA 4.5>	GPA 4.0>	GPA 3.5>	GPA 3.0>	<GPA 3.0
PSC						

JSC						
SSC						
1 st year Final/ Pre- test Exam						

For 2nd Year Student:

	GPA 5	GPA 4.5>	GPA 4.0>	GPA 3.5>	GPA 3.0>	<GPA 3.0
PSC						
JSC						
SSC						
1 st year Final/ Pre- test Exam						
2 nd year Final/ Test Exam						

17. How many hours per day do you currently study? *

- ☐ Less than 2 hours
- ☐ 2-4 hours
- ☐ 5-6 hours
- ☐ 6 hours or more

18. What mode of education did you primarily use during the pandemic COVID-19? (You can select multiple) *

- ☐ Online classes
- ☐ Self-study
- ☐ Tuition/ Coaching
- ☐ No study

19. How often did you attend online classes during COVID-19? *

- ☐ Always

- Sometimes
- Rarely
- Never

20. I struggle more with focusing on my studies now compared to before COVID-19. *

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

21. My academic performance has declined after the COVID-19 pandemic.*

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

22. Online classes during COVID-19 disrupted my regular learning pattern. *

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

Section 4: Lifestyle Pattern

23. My daily routine is less organized now compared to before COVID-19.*

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

24. My use of social media has increased significantly since the COVID-19 pandemic. *

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

25. I spend more time indoors and have fewer physical activities after COVID-19.*

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

26. I sleep irregular hours since the COVID-19 pandemic.*

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

27. How many hours do you use social media (Facebook, Instagram, Tiktok, Internet Browsing etc.)? *

- ☐ Rarely
- ☐ 1-2 hours/day
- ☐ 3-5 hours/day
- ☐ More than 5 hours/day

28. How often do you play sports or exercise? *

- ☐ Daily
- ☐ 4-5 days/week
- ☐ Occasionally
- ☐ Never

29. How many hours of sleep do you get on average? *

- Less than 3 hours
- 3-5 hours
- 5-7 hours
- 8 hours or more

Section 5: Symptoms of Depression (PHQ-9) and Anxiety Disorder (GAD-7)

[Answer the following questions regarding how often you have experienced these symptoms over the **past two weeks**.]

Depressive Symptoms (PHQ-9) *

	Not at all	Several days	More than half the days	Nearly everyday
1. Little interest or pleasure in doing things?				
2. Feeling down, depressed, or hopeless?				
3. Trouble sleeping or sleeping too much?				
4. Feeling tired or having little energy?				
5. Poor appetite or overeating?				
6. Feeling bad about yourself or that you let others down?				
7. Trouble concentrating on things?				
8. Moving or speaking slowly, or being fidgety?				
9. Thoughts of hurting yourself?				

Anxiety Disorder (GAD-7) [Answer the following questions regarding how often you have experienced these symptoms over the **past two weeks**.] *

	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge?				
2. Not being able to stop or control worrying?				
3. Worrying too much about different things?				
4. Trouble relaxing?				
5. Being so restless that it's hard to sit still?				
6. Becoming easily annoyed or irritable?				
7. Feeling afraid something awful might happen?				

Section 6: Perception of Depression and Anxiety

30. My mental health worsened significantly due to COVID-19 disruptions. *

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

31. My social support (friends, family) has played a critical role in managing my stress after COVID-19. *

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

32. My academic activities have been directly affected by my mental health issues since COVID-19. *

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

33. Lifestyle changes after COVID-19 caused an increase in depressive or anxiety symptoms (mental health challenges) *

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

34. How do you currently cope with stress or depressive symptoms? (You can select multiple) *

- ☐ Talking with friends/family
- ☐ Physical activities/exercise
- ☐ Social media/Internet use
- ☐ Watching TV/Movies/sports
- ☐ Counselling with Experts
- ☐ Get advice from teachers
- ☐ Not applicable

Section 7 & 8: Mental Health Support from educational institutions

35. Did you get any kind of mental health support from your educational institutions after COVID-19? *

- ☐ Yes
- ☐ No

36. If yes, Are you satisfied with the mental health support provided from your educational institutions? *

- ☐ Yes
- ☐ No

Section 9: Mental Health Support from educational institutions (Open ended questions)

37. What changes in educational practices do you think would support your mental well-being after COVID-19?
38. Do you have any suggestions on how students' mental health can be improved in schools/colleges?

Appendix II:

Dependency analysis using the Chi-square test

Table 1: Level of Depression by Demographics

Demographics		n	Level of Depression (%)		P-value
			Minimal to mild	Moderate to severe	
Q2_Gender	Male	145	38.6	61.4	0.809
	Female	262	37.4	62.6	
Q3_Location	Urban	195	30.3	69.7	.002*
	Rural	212	44.8	55.2	
Q1cat Age	15-17	136	41.2	58.8	0.325
	18	271	36.2	63.8	
Q15 What year/class are you currently studying?	First Year	227	37.4	62.6	0.854
	Second Year	180	38.3	61.7	
Q4n2_Family income	<30000 Taka	262	38.2	61.8	0.711
	30000-60000 Taka	105	35.2	64.8	
	>60000 Taka	40	42.5	57.5	
Q5 Father's Educational Qualification	Primary Education	135	42.2	57.8	0.350
	SSC	84	41.7	58.3	
	HSC	66	34.8	65.2	
	Graduation	79	29.1	70.9	
	Post-Graduation	43	37.2	62.8	
Q6 Mother's Educational Qualification	Primary Education	134	40.3	59.7	0.379
	SSC	148	37.2	62.8	
	HSC	68	32.4	67.6	
	Graduation	37	32.4	67.6	
	Post-Graduation	20	55.0	45.0	
Q7n Father's Occupation	Government Service	34	32.4	67.6	.008*
	Business	143	37.8	62.2	
	Agriculture and Fisheries Related	46	58.7	41.3	
	Residing abroad	57	42.1	57.9	
	Private service	50	24.0	76.0	
	Unemployed	35	22.9	77.1	
	Others (Teachers, Doctors and None)	42	42.9	57.1	

Q8_Mother's Occupation	Homemaker	362	38.1	61.9	0.738
	Others (Teachers, Private sectors, Business, Govt. services, None, etc.)	45	35.6	64.4	

Note: *. The Chi-square statistics are significant at the .05 level. The level of Depression is categorized in 'minimal to mild' and 'moderate to severe', while Age (15-17 & 18), Father's Occupation and Mother's Occupation are also adjusted as the table above.

Table 2: Level of Anxiety by Demographics

Demographics		n	Level of Anxiety (%)		P-value
			Minimal to mild	Moderate to severe	
Q2_Gender	Male	145	59.3	40.7	0.113
	Female	262	51.1	48.9	
Q3_Location	Urban	195	46.2	53.8	.002*
	Rural	212	61.3	38.7	
Q1cat_Age	15-17	136	59.6	40.4	0.114
	18	271	51.3	48.7	
Q15_What year/class are you currently studying?	First Year	227	55.1	44.9	0.645
	Second Year	180	52.8	47.2	
Q4n2_Family income	<30000 Taka	262	53.8	46.2	0.577
	30000-60000 Taka	105	57.1	42.9	
	>60000 Taka	40	47.5	52.5	
Q5_Father's Educational Qualification	Primary Education	135	54.8	45.2	0.915
	SSC	84	56.0	44.0	
	HSC	66	56.1	43.9	
	Graduation	79	49.4	50.6	
	Post-Graduation	43	53.5	46.5	
Q6_Mother's Educational Qualification	Primary Education	134	52.2	47.8	0.508
	SSC	148	56.1	43.9	
	HSC	68	48.5	51.5	
	Graduation	37	54.1	45.9	
	Post-Graduation	20	70.0	30.0	
Q7n_Father's Occupation	Government Service	34	44.1	55.9	.003*
	Business	143	52.4	47.6	

	Agriculture and Fisheries Related	46	71.7	28.3	
	Residing abroad	57	64.9	35.1	
	Private service	50	40.0	60.0	
	Unemployed	35	37.1	62.9	
	Others (Teachers, Doctors and None)	42	64.3	35.7	
Q8 Mother's Occupation	Homemaker	362	54.1	45.9	0.918
	Others (Teachers, Private sectors, Business, Govt. services, None, etc.)	45	53.3	46.7	

Note: *. The Chi-square statistics are significant at the .05 level. The level of Anxiety is categorized in 'minimal to mild' and 'moderate to severe', while Age (15-17 & 18), Father's Occupation and Mother's Occupation are also adjusted as the table above.

Table 3: Level of Depression by Social Capital

Social Capital		n	Level of Depression (%)		P-value
			Minimal to mild	Moderate to severe	
Q9_I feel less connected to my friends compared to before COVID-19	Strongly Disagree	40	52.5	47.5	.046*
	Disagree	138	42.0	58.0	
	Agree	191	34.0	66.0	
	Strongly Agree	38	26.3	73.7	
Q10_My relationship with family members has improved after COVID-19 (spending family time/ gossiping/ working together/ traveling, etc.)	Strongly Disagree	14	28.6	71.4	.015*
	Disagree	109	25.7	74.3	
	Agree	238	42.9	57.1	
	Strongly Agree	46	43.5	56.5	
Q11_I have fewer opportunities for social interaction compared to before COVID-19	Strongly Disagree	26	34.6	65.4	.003*
	Disagree	130	50.0	50.0	
	Agree	213	33.8	66.2	
	Strongly Agree	38	21.1	78.9	
Q12_My sense of belonging to my community has declined since COVID-19	Strongly Disagree	20	60.0	40.0	.025*
	Disagree	172	42.4	57.6	
	Agree	195	31.3	68.7	
	Strongly Agree	20	40.0	60.0	
Q13_Before Covid-19, how often did you interact socially (e.g.,	Very often	279	38.0	62.0	0.449
	Weekly	33	33.3	66.7	

meeting friends, participating in community programs, etc.)?	Monthly	14	57.1	42.9	
	Rarely	81	35.8	64.2	
Q14 _After Covid-19, how often did you interact socially (e.g., meeting friends, participating in community programs, etc.)?	Very often	180	45.0	55.0	.005*
	Weekly	49	46.9	53.1	
	Monthly	26	26.9	73.1	
	Rarely	152	28.3	71.7	

Note: *. The Chi-square statistics are significant at the .05 level. The level of Depression is categorized in 'minimal to mild' and 'moderate to severe' and adjusted as the table above.

Table 4: Level of Anxiety by Social Capital

Social Capital		n	Level of Anxiety (%)		P-value
			Minimal to mild	Moderate to severe	
Q9 _I feel less connected to my friends compared to before COVID-19	Strongly Disagree	40	65.0	35.0	.007*
	Disagree	138	62.3	37.7	
	Agree	191	49.2	50.8	
	Strongly Agree	38	36.8	63.2	
Q10 _My relationship with family members has improved after COVID-19 (spending family time/ gossiping/ working together/ traveling, etc.)	Strongly Disagree	14	35.7	64.3	.001*
	Disagree	109	39.4	60.6	
	Agree	238	60.1	39.9	
	Strongly Agree	46	63.0	37.0	
Q11 _I have fewer opportunities for social interaction compared to before COVID-19	Strongly Disagree	26	50.0	50.0	.002*
	Disagree	130	66.9	33.1	
	Agree	213	49.8	50.2	
	Strongly Agree	38	36.8	63.2	
Q12 _My sense of belonging to my community has declined since COVID-19	Strongly Disagree	20	75.0	25.0	.004*
	Disagree	172	61.6	38.4	
	Agree	195	45.6	54.4	
	Strongly Agree	20	50.0	50.0	
Q13 _Before Covid-19, how often did you interact socially (e.g., meeting friends, participating in community programs, etc.)?	Very often	279	53.4	46.6	0.395
	Weekly	33	45.5	54.5	
	Monthly	14	71.4	28.6	
	Rarely	81	56.8	43.2	

Q14_After Covid-19, how often did you interact socially (e.g., meeting friends, participating in community programs, etc.)?	Very often	180	60.0	40.0	0.064
	Weekly	49	59.2	40.8	
	Monthly	26	42.3	57.7	
	Rarely	152	47.4	52.6	

Note: *. The Chi-square statistics are significant at the .05 level. The level of Anxiety is categorized in 'minimal to mild' and 'moderate to severe' and adjusted as the table above.

Table 5: Level of Depression by Academic Achievements (Q16)

Academic Achievements (by GPA)		n	Level of Depression (%)		P-value
			Minimal to Mild	Moderate to Severe	
Q16n_psc GPA	Low (<GPA 4)	22	31.8	68.2	0.395
	Medium (GPA 4 - 4.99)	176	41.5	58.5	
	High (GPA 5)	209	35.4	64.6	
Q16n_jsc GPA	Low (<GPA 4)	40	37.5	62.5	0.950
	Medium (GPA 4 - 4.99)	173	38.7	61.3	
	High (GPA 5)	194	37.1	62.9	
Q16n_ssc GPA	Low (<GPA 4)	37	29.7	70.3	0.523
	Medium (GPA 4 - 4.99)	236	39.4	60.6	
	High (GPA 5)	134	37.3	62.7	
Q16n_1yr GPA	Low (<GPA 4)	128	31.3	68.8	.038*
	Medium (GPA 4 - 4.99)	231	38.5	61.5	
	High (GPA 5)	48	52.1	47.9	
Q16n_2yr GPA	Low (<GPA 4)	48	39.6	60.4	0.900
	Medium (GPA 4 - 4.99)	113	37.2	62.8	
	High (GPA 5)	19	42.1	57.9	

Note: *. The Chi-square statistics are significant at the .05 level. The level of Depression is categorized in 'minimal to mild' and 'moderate to severe', while GPA is categorized as Low (<GPA 4), Medium (GPA 4 - 4.99) and High (GPA 5) as the table above.

Table 6: Level of Depression by all students (GPA-category)

Academic Achievements (by GPA)		n	Level of Depression (%)		P-value
			Minimal to Mild	Moderate to Severe	
Q16_1yr	<GPA 3.0	33	24.2	75.8	0.128
	GPA 3.0>	27	33.3	66.7	

	GPA 3.5>	68	33.8	66.2	
	GPA 4.0>	142	35.9	64.1	
	GPA 4.5>	89	42.7	57.3	
	GPA 5	48	52.1	47.9	

Note: *. The Chi-square statistics are significant at the .05 level. The level of Depression is categorized in 'minimal to mild' and 'moderate to severe' as the table above.

Table 7: Level of Depression by Academic Achievements (Q17- Q22)

Academic Achievement		Level of Depression (%)			
		n	Minimal to Mild	Moderate to Severe	P-value
Q17_ How many hours per day do you currently study?	Less than 2 hours	134	20.1	79.9	.000*
	2-4 hours	125	38.4	61.6	
	5-6 hours	87	47.1	52.9	
	6 hours or more	61	62.3	37.7	
Q18_1_Online classes	0	203	41.4	58.6	0.142
	1	204	34.3	65.7	
Q18_2_Self-study	0	201	34.3	65.7	0.149
	1	206	41.3	58.7	
Q18_3_Tuition/Coaching	0	321	38.6	61.4	0.525
	1	86	34.9	65.1	
Q18_4_No study	0	371	39.4	60.6	.043*
	1	36	22.2	77.8	
Q19_ How often did you attend online classes during COVID-19?	Always	76	36.8	63.2	0.366
	Sometimes	173	41.0	59.0	
	Rarely	69	29.0	71.0	
	Never	89	39.3	60.7	
Q20_ I struggle more with focusing on my studies now compared to before COVID-19.	Strongly Disagree	18	66.7	33.3	.000*
	Disagree	102	61.8	38.2	
	Agree	164	36.6	63.4	
	Strongly Agree	123	15.4	84.6	
Q21_ My academic performance has declined after the COVID-19 pandemic.	Strongly Disagree	16	87.5	12.5	.000*
	Disagree	94	58.5	41.5	
	Agree	197	34.0	66.0	
	Strongly Agree	100	18.0	82.0	
Q22_ Online classes during COVID-19	Strongly Disagree	15	53.3	46.7	.015*
	Disagree	123	48.0	52.0	

disrupted my regular learning pattern.	Agree	220	32.7	67.3	
	Strongly Agree	49	30.6	69.4	

Note: *. The Chi-square statistics are significant at the .05 level. The level of Depression is categorized in 'minimal to mild' and 'moderate to severe', while the Q18 options are categorized as 'Yes=0' and 'No=1', as the table above.

Table 8: Level of Anxiety by Academic Achievements (Q16)

Academic Achievements (by GPA)		n	Level of Anxiety (%)		P-value
			Minimal to Mild	Moderate to Severe	
Q16n_psc GPA	Low (<GPA 4)	22	63.6	36.4	0.451
	Medium (GPA 4 - 4.99)	176	51.1	48.9	
	High (GPA 5)	209	55.5	44.5	
Q16n_jsc GPA	Low (<GPA 4)	40	55.0	45.0	0.777
	Medium (GPA 4 - 4.99)	173	52.0	48.0	
	High (GPA 5)	194	55.7	44.3	
Q16n_ssc GPA	Low (<GPA 4)	37	43.2	56.8	0.353
	Medium (GPA 4 - 4.99)	236	55.9	44.1	
	High (GPA 5)	134	53.7	46.3	
Q16n_1yr GPA	Low (<GPA 4)	128	47.7	52.3	0.072
	Medium (GPA 4 - 4.99)	231	55.0	45.0	
	High (GPA 5)	48	66.7	33.3	
Q16n_2yr GPA	Low (<GPA 4)	48	50.0	50.0	0.611
	Medium (GPA 4 - 4.99)	113	52.2	47.8	
	High (GPA 5)	19	63.2	36.8	

Note: *. The Chi-square statistics are significant at the .05 level. The level of Anxiety is categorized in 'minimal to mild' and 'moderate to severe', while GPA is categorized as Low (<GPA 4), Medium (GPA 4 - 4.99) and High (GPA 5) as the table above.

Table 9: Level of Anxiety by all students (GPA-category)

Academic Achievements (by GPA)		n	Level of Anxiety (%)		P-value
			Minimal to Mild	Moderate to Severe	
Q16_1yr	<GPA 3.0	33	36.4	63.6	.014*
	GPA 3.0>	27	63.0	37.0	
	GPA 3.5>	68	47.1	52.9	

	GPA 4.0>	142	49.3	50.7	
	GPA 4.5>	89	64.0	36.0	
	GPA 5	48	66.7	33.3	

Note: *. The Chi-square statistics are significant at the .05 level. The level of Anxiety is categorized in 'minimal to mild' and 'moderate to severe' as the table above.

Table 10: Level of Anxiety by Academic Achievements (Q17- Q22)

Academic Achievement		Level of Anxiety (%)			
		n	Minimal to Mild	Moderate to Severe	P-value
Q17 How many hours per day do you currently study?	Less than 2 hours	134	38.8	61.2	.000*
	2-4 hours	125	58.4	41.6	
	5-6 hours	87	60.9	39.1	
	6 hours or more	61	68.9	31.1	
Q18_1_Online classes	0	203	55.2	44.8	0.652
	1	204	52.9	47.1	
Q18_2_Self-study	0	201	48.3	51.7	.020*
	1	206	59.7	40.3	
Q18_3_Tuition/Coaching	0	321	55.1	44.9	0.396
	1	86	50.0	50.0	
Q18_4_No study	0	371	56.1	43.9	.009*
	1	36	33.3	66.7	
Q19 How often did you attend online classes during COVID-19?	Always	76	56.6	43.4	0.563
	Sometimes	173	54.9	45.1	
	Rarely	69	46.4	53.6	
	Never	89	56.2	43.8	
Q20_I struggle more with focusing on my studies now compared to before COVID-19.	Strongly Disagree	18	66.7	33.3	.000*
	Disagree	102	74.5	25.5	
	Agree	164	51.2	48.8	
	Strongly Agree	123	39.0	61.0	
Q21_My academic performance has declined after the COVID-19 pandemic.	Strongly Disagree	16	81.3	18.8	.000*
	Disagree	94	73.4	26.6	
	Agree	197	51.8	48.2	
	Strongly Agree	100	36.0	64.0	
Q22_Online classes during	Strongly Disagree	15	53.3	46.7	.000*

COVID-19 disrupted my regular learning pattern.	Disagree	123	65.9	34.1	
	Agree	220	52.7	47.3	
	Strongly Agree	49	30.6	69.4	

Note: *. The Chi-square statistics are significant at the .05 level. The level of Anxiety is categorized in 'minimal to mild' and 'moderate to severe', while the Q18 options are categorized as 'Yes=0' and 'No=1', as the table above.

Table 11: Level of Depression by Lifestyle Patterns

Lifestyle Pattern		n	Level of Depression (%)		P-value
			Minimal to Mild	Moderate to Severe	
Q23_My daily routine is less organized now compared to before COVID-19.	Strongly Disagree	18	72.2	27.8	.000*
	Disagree	94	61.7	38.3	
	Agree	249	30.9	69.1	
	Strongly Agree	46	13.0	87.0	
Q24_My use of social media has increased significantly since the COVID-19 pandemic.	Strongly Disagree	14	92.9	7.1	.000*
	Disagree	45	73.3	26.7	
	Agree	207	39.1	60.9	
	Strongly Agree	141	19.1	80.9	
Q25_I spend more time indoors and have fewer physical activities after COVID-19.	Strongly Disagree	17	52.9	47.1	.000*
	Disagree	76	56.6	43.4	
	Agree	218	40.8	59.2	
	Strongly Agree	96	13.5	86.5	
Q26_I sleep irregular hours since the COVID-19 pandemic.	Strongly Disagree	23	69.6	30.4	.000*
	Disagree	106	59.4	40.6	
	Agree	186	37.1	62.9	
	Strongly Agree	92	6.5	93.5	
Q27_How many hours do you use social media (Facebook, Instagram, Tiktok, Internet Browsing etc.)?	Rarely	41	58.5	41.5	.000*
	1-2 hours/day	100	65.0	35.0	
	3-5 hours/day	127	29.9	70.1	
	More than 5 hours/day	139	19.4	80.6	

Q28_How often do you play sports or exercise?	Daily	17	52.9	47.1	.002*
	4-5 days/week	35	51.4	48.6	
	Occasionally	231	41.6	58.4	
	Never	124	25.0	75.0	
Q29_How many hours of sleep do you get on average?	Up to 5 hours	42	42.9	57.1	.026*
	5-7 hours	249	41.8	58.2	
	8 hours or more	116	27.6	72.4	

Note: *. The Chi-square statistics are significant at the .05 level. The level of Depression is categorized in 'minimal to mild' and 'moderate to severe', as the table above.

Table 12: Level of Anxiety by Lifestyle Patterns

Lifestyle Pattern		n	Level of Anxiety (%)		P-value
			Minimal to Mild	Moderate to Severe	
Q23_My daily routine is less organized now compared to before COVID-19.	Strongly Disagree	18	61.1	38.9	.000*
	Disagree	94	76.6	23.4	
	Agree	249	50.6	49.4	
	Strongly Agree	46	23.9	76.1	
Q24_My use of social media has increased significantly since the COVID-19 pandemic.	Strongly Disagree	14	85.7	14.3	.000*
	Disagree	45	77.8	22.2	
	Agree	207	58.9	41.1	
	Strongly Agree	141	36.2	63.8	
Q25_I spend more time indoors and have fewer physical activities after COVID-19.	Strongly Disagree	17	47.1	52.9	.000*
	Disagree	76	72.4	27.6	
	Agree	218	61.5	38.5	
	Strongly Agree	96	24.0	76.0	
Q26_I sleep irregular hours since the COVID-19 pandemic.	Strongly Disagree	23	65.2	34.8	.000*
	Disagree	106	77.4	22.6	
	Agree	186	54.8	45.2	
	Strongly Agree	92	22.8	77.2	
	Rarely	41	73.2	26.8	.000*

Q27_How many hours do you use social media (Facebook, Instagram, Tiktok, Internet Browsing etc.)?	1-2 hours/day	100	78.0	22.0	
	3-5 hours/day	127	52.8	47.2	
	More than 5 hours/day	139	32.4	67.6	
Q28_How often do you play sports or exercise?	Daily	17	76.5	23.5	.000*
	4-5 days/week	35	74.3	25.7	
	Occasionally	231	60.2	39.8	
	Never	124	33.9	66.1	
Q29_How many hours of sleep do you get on average?	Up to 5 hours	42	59.5	40.5	0.060
	5-7 hours	249	57.4	42.6	
	8 hours or more	116	44.8	55.2	

Note: *. The Chi-square statistics are significant at the .05 level. The level of Anxiety is categorized in 'minimal to mild' and 'moderate to severe', as the table above.

Appendix III:

Detailed Tables of Multiple Binary Logistic Regression

Table 1: Logistic regression predicting likelihood of moderate-to-severe depression (vs. minimal-to-mild) from demographic and social capital indicators

Variables	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Q2n_Sex(1-Male)	0.070	0.249	0.078	1	0.780	1.072	0.658	1.747
Q3n_Location(1-Urban)	0.540	0.245	4.863	1	0.027	1.717	1.062	2.775
Q1cat2_Age(15-17)	0.079	0.251	0.099	1	0.753	1.082	0.662	1.770
Q5_Father's Educational Qualification(primary)			2.083	4	0.720			
Q5_Father's Educational Qualification (1-SSC)	-0.030	0.317	0.009	1	0.924	0.970	0.521	1.805
Q5_Father's Educational Qualification (2-HSC)	0.316	0.375	0.709	1	0.400	1.372	0.657	2.863
Q5_Father's Educational Qualification (3-Graduation)	0.502	0.437	1.316	1	0.251	1.651	0.701	3.891
Q5_Father's Educational Qualification (4- Post-Graduation)	0.463	0.527	0.774	1	0.379	1.589	0.566	4.463
Q6_Mother's Educational Qualification (primary)			2.954	4	0.566			
Q6_Mother's Educational Qualification(1-SSC)	0.081	0.293	0.077	1	0.782	1.085	0.611	1.927
Q6_Mother's Educational Qualification(2-HSC)	0.171	0.408	0.175	1	0.676	1.186	0.533	2.641
Q6_Mother's Educational Qualification(3-Graduation)	0.031	0.530	0.003	1	0.953	1.031	0.365	2.914
Q6_Mother's Educational Qualification(4-Post-Graduation)	-0.807	0.623	1.678	1	0.195	0.446	0.132	1.513
Q7n2_Father Occupation (Govt. service)			10.400	6	0.109			
Q7n2_Father Occupation(1-Business)	-0.336	0.453	0.550	1	0.458	0.715	0.294	1.737
Q7n2_Father Occupation(2-Agriculture)	-0.989	0.546	3.283	1	0.070	0.372	0.128	1.084
Q7n2_Father Occupation(3-Abroad)	-0.250	0.513	0.237	1	0.626	0.779	0.285	2.130
Q7n2_Father Occupation(4-Private sector)	0.178	0.540	0.109	1	0.741	1.195	0.414	3.447

Q7n2_Father Occupation(5-Unemployed)	0.378	0.600	0.397	1	0.529	1.459	0.450	4.727
Q7n2_Father Occupation(6-Others)	-0.631	0.526	1.437	1	0.231	0.532	0.190	1.493
Q9n_I feel less connected to my friends compared to before covid-19(1-Agree/Strongly agree)	0.147	0.260	0.321	1	0.571	1.158	0.697	1.926
Q10n_My relationship with family members has improved after covid-19(1-Agree/Strongly agree)	-0.796	0.258	9.525	1	0.002	0.451	0.272	0.748
Q11n_I have fewer opportunities for social interaction compared to before Covid-19(1-Agree/Strongly agree)	0.507	0.254	3.981	1	0.046	1.660	1.009	2.732
Q12n_My sense of belonging to my community has declined since COVID-19(1-Agree/Strongly agree)	0.149	0.253	0.347	1	0.556	1.161	0.706	1.908
Q13n_Before Covid-19, how often did you interact socially(Rarely)			0.403	2	0.818			
Q13n_Before Covid-19, how often did you interact socially(1-very often)	0.054	0.307	0.030	1	0.862	1.055	0.578	1.926
Q13n_Before Covid-19, how often did you interact socially(2-weekly/monthly)	-0.179	0.440	0.166	1	0.684	0.836	0.353	1.981
Q14n_After Covid-19, how often did you interact socially(Rarely)			3.097	2	0.213			
Q14n_After Covid-19, how often did you interact socially(1-Very often)	-0.502	0.290	2.998	1	0.083	0.605	0.343	1.068
Q14n_After Covid-19, how often did you interact socially(2-weekly/monthly)	-0.407	0.351	1.343	1	0.247	0.666	0.335	1.325
Constant	0.693	0.630	1.211	1	0.271	2.000		

Note 1. *Chi-square test significant at $p < 0.05$. SE = Standard Error; B = Coefficient; OR = Odds Ratio; df= Degrees of Freedom; CI = Confidence Interval; 2. Nagelkerke $R^2 = .175$ (pseudo- R^2 reflecting that the model explains 17.5% of variance in depression level). Hosmer–Lemeshow $\chi^2(8) = 7.72$, $p = .461$ indicates good model fit ($p > .05$). Overall classification accuracy = 52.3%, i.e. the model correctly classifies 52.3% of cases.

Table 2: Logistic regression predicting likelihood of moderate-to-severe Anxiety (vs. minimal-to-mild) from demographic and social capital indicators

Variables	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Q2n_Sex(1-Male)	-0.354	0.246	2.076	1	0.150	0.702	0.434	1.136
Q3n_Location(1-Urban)	0.400	0.239	2.807	1	0.094	1.492	0.934	2.384
Q1cat2_Age(15-17)	-0.164	0.249	0.438	1	0.508	0.848	0.521	1.381
Q5_Father's Educational Qualification(primary)			1.101	4	0.894			
Q5_Father's Educational Qualification (1-SSC)	-0.094	0.317	0.088	1	0.767	0.910	0.489	1.694
Q5_Father's Educational Qualification (2-HSC)	-0.090	0.373	0.059	1	0.809	0.914	0.439	1.899
Q5_Father's Educational Qualification (3-Graduation)	0.249	0.419	0.355	1	0.552	1.283	0.565	2.915
Q5_Father's Educational Qualification (4- Post-Graduation)	0.296	0.506	0.342	1	0.559	1.344	0.499	3.622
Q6_Mother's Educational Qualification (primary)			2.601	4	0.627			
Q6_Mother's Educational Qualification(1-SSC)	-0.092	0.290	0.100	1	0.752	0.912	0.516	1.612
Q6_Mother's Educational Qualification(2-HSC)	0.140	0.394	0.126	1	0.723	1.150	0.531	2.492
Q6_Mother's Educational Qualification(3-Graduation)	-0.163	0.511	0.101	1	0.750	0.850	0.312	2.314
Q6_Mother's Educational Qualification(4-Post-Graduation)	-0.829	0.645	1.655	1	0.198	0.436	0.123	1.544
Q7n2_Father Occupation (Govt. service)			13.367	6	0.038			
Q7n2_Father Occupation(1-Business)	-0.534	0.433	1.519	1	0.218	0.586	0.251	1.371
Q7n2_Father Occupation(2-Agriculture)	-1.264	0.550	5.287	1	0.021	0.283	0.096	0.830
Q7n2_Father Occupation(3-Abroad)	-0.804	0.500	2.586	1	0.108	0.448	0.168	1.192
Q7n2_Father Occupation(4-Private sector)	-0.193	0.498	0.151	1	0.698	0.824	0.311	2.187

Q7n2_Father Occupation(5-Unemployed)	0.083	0.550	0.023	1	0.880	1.087	0.370	3.194
Q7n2_Father Occupation(6-Others)	-1.110	0.522	4.527	1	0.033	0.330	0.119	0.916
Q9n_I feel less connected to my friends compared to before covid-19(1-Agree/Strongly agree)	0.389	0.252	2.385	1	0.123	1.476	0.901	2.418
Q10n_My relationship with family members has improved after covid-19(1-Agree/Strongly agree)	-0.972	0.245	15.773	1	0.000	0.378	0.234	0.611
Q11n_I have fewer opportunities for social interaction compared to before Covid-19(1-Agree/Strongly agree)	0.380	0.253	2.246	1	0.134	1.462	0.890	2.402
Q12n_My sense of belonging to my community has declined since COVID-19(1-Agree/Strongly agree)	0.393	0.249	2.489	1	0.115	1.481	0.909	2.414
Q13n_Before Covid-19, how often did you interact socially(Rarely)			0.475	2	0.789			
Q13n_Before Covid-19, how often did you interact socially(1-very often)	0.192	0.297	0.415	1	0.520	1.211	0.676	2.170
Q13n_Before Covid-19, how often did you interact socially(2-weekly/monthly)	0.065	0.432	0.023	1	0.880	1.067	0.458	2.489
Q14n_After Covid-19, how often did you interact socially(Rarely)			0.007	2	0.997			
Q14n_After Covid-19, how often did you interact socially(1-Very often)	-0.016	0.276	0.003	1	0.953	0.984	0.573	1.691
Q14n_After Covid-19, how often did you interact socially(2-weekly/monthly)	-0.026	0.337	0.006	1	0.939	0.975	0.503	1.886
Constant	0.284	0.612	0.216	1	0.642	1.329		

Note. 1. *Chi-square test significant at $p < 0.05$. SE = Standard Error; B = Coefficient; OR = Odds Ratio; df= Degrees of Freedom; CI = Confidence Interval; 2. Nagelkerke $R^2 = .197$ (pseudo- R^2 reflecting that the model explains 19.7% of variance in anxiety level). Hosmer–Lemeshow $\chi^2(8) = 9.60$, $p = .294$ indicates good model fit ($p > .05$). Overall classification accuracy = 60.7%, i.e. the model correctly classifies 60.7% of cases.

Table 3: Logistic regression predicting the likelihood of moderate-to-severe Depression (vs. minimal-to-mild) from demographic and Academic achievement indicators

Variables	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Q2n_Sex(1-Male)	-0.184	0.273	0.455	1	0.500	0.832	0.488	1.420
Q3n_Location(1-Urban)	0.288	0.286	1.014	1	0.314	1.334	0.762	2.335
Q1cat2_Age(15-17)	0.071	0.273	0.068	1	0.794	1.074	0.629	1.832
Q5_Father's Educational Qualification(primary)			2.963	4	0.564			
Q5_Father's Educational Qualification (1-SSC)	0.192	0.346	0.309	1	0.578	1.212	0.615	2.389
Q5_Father's Educational Qualification (2-HSC)	0.391	0.425	0.846	1	0.358	1.479	0.643	3.403
Q5_Father's Educational Qualification (3-Graduation)	0.829	0.488	2.883	1	0.090	2.291	0.880	5.963
Q5_Father's Educational Qualification (4- Post-Graduation)	0.512	0.586	0.763	1	0.382	1.668	0.529	5.257
Q6_Mother's Educational Qualification (primary)			3.902	4	0.419			
Q6_Mother's Educational Qualification(1-SSC)	0.040	0.316	0.016	1	0.900	1.040	0.560	1.934
Q6_Mother's Educational Qualification(2-HSC)	0.243	0.466	0.272	1	0.602	1.275	0.511	3.181
Q6_Mother's Educational Qualification(3-Graduation)	-0.137	0.566	0.058	1	0.809	0.872	0.287	2.646
Q6_Mother's Educational Qualification(4-Post-Graduation)	-1.097	0.717	2.343	1	0.126	0.334	0.082	1.360
Q7n2_Father Occupation (Govt. service)			7.512	6	0.276			
Q7n2_Father Occupation(1-Business)	-0.113	0.518	0.048	1	0.827	0.893	0.323	2.465
Q7n2_Father Occupation(2-Agriculture)	-0.488	0.614	0.633	1	0.426	0.614	0.184	2.043
Q7n2_Father Occupation(3-Abroad)	-0.273	0.569	0.230	1	0.632	0.761	0.250	2.322
Q7n2_Father Occupation(4-Private sector)	0.083	0.605	0.019	1	0.891	1.087	0.332	3.557

Q7n2_Father Occupation(5-Unemployed)	0.817	0.667	1.501	1	0.221	2.264	0.613	8.365
Q7n2_Father Occupation(6-Others)	-0.592	0.592	1.001	1	0.317	0.553	0.174	1.764
Q16n_psc GPA(GPA 5)			4.818	2	0.090			
Q16n_psc GPA(1-GPA<4)	0.237	0.596	0.158	1	0.691	1.267	0.394	4.073
Q16n_psc GPA(2-GPA 4-4.99)	-0.548	0.281	3.791	1	0.052	0.578	0.333	1.004
Q16n_ssc GPA(GPA 5)			2.463	2	0.292			
Q16n_ssc GPA(1-GPA<4)	-0.017	0.541	0.001	1	0.975	0.983	0.340	2.840
Q16n_ssc GPA(2-GPA 4-4.99)	-0.420	0.303	1.918	1	0.166	0.657	0.363	1.191
Q16n_1yr GPA(GPA 5)			1.457	2	0.483			
Q16n_1yr GPA(1-GPA<4)	0.539	0.447	1.455	1	0.228	1.714	0.714	4.111
Q16n_1yr GPA(2-GPA 4-4.99)	0.395	0.408	0.935	1	0.333	1.484	0.667	3.306
Q17_How many hours per day do you currently study?(6hrs/more)			10.968	3	0.012			
Q17_How many hours per day do you currently study? (1-less than 2 hrs)	1.437	0.453	10.054	1	0.002	4.208	1.731	10.229
Q17_How many hours per day do you currently study? (2-2to 4 hrs)	0.673	0.399	2.846	1	0.092	1.960	0.897	4.283
Q17_How many hours per day do you currently study? (3-5to6 hrs)	0.510	0.402	1.608	1	0.205	1.665	0.757	3.664
Q18_1_Online classes (1-yes)	0.781	0.347	5.071	1	0.024	2.184	1.107	4.311
Q18_2_Self-study (1-yes)	0.158	0.300	0.278	1	0.598	1.171	0.651	2.108
Q18_3_Tuition/Coaching (1-yes)	0.644	0.341	3.559	1	0.059	1.903	0.975	3.714
Q18_4_No study (1-yes)	0.679	0.572	1.411	1	0.235	1.972	0.643	6.046
Q19_How often did you attend online classes during COVID-19? (Never)			3.304	3	0.347			
Q19_How often did you attend online classes during COVID-19? (1-always)	-0.099	0.479	0.043	1	0.836	0.906	0.354	2.317

Q19_How often did you attend online classes during COVID-19? (2-sometimes)	-0.372	0.358	1.076	1	0.300	0.690	0.342	1.391
Q19_How often did you attend online classes during COVID-19? (3-rarely)	0.273	0.413	0.438	1	0.508	1.314	0.585	2.953
Q20n_I struggle more with focusing on my studies now compared to before COVID-19(1-agree/strongly agree)	0.713	0.307	5.399	1	0.020	2.040	1.118	3.722
Q21n_My academic performance has declined after the COVID-19 pandemic(1-agree/strongly agree)	0.803	0.313	6.583	1	0.010	2.233	1.209	4.125
Q22n_Online classes during COVID-19 disrupted my regular learning pattern(1-agree/strongly agree)	0.223	0.268	0.690	1	0.406	1.250	0.739	2.115
Constant	-2.140	0.868	6.085	1	0.014	0.118		

Note. 1. *Chi-square test significant at $p < 0.05$. SE = Standard Error; B = Coefficient; OR = Odds Ratio; df= Degrees of Freedom; CI = Confidence Interval; 2. Nagelkerke $R^2 = .319$, indicating the model explains 31.9 % of variance in depression category. Hosmer–Lemeshow $\chi^2(8) = 5.16$ ($p = .740$) shows good model fit ($p > .05$). Overall classification accuracy = 72.2 %, i.e. the model correctly predicts 72.2 % of cases.

Table 4: Logistic regression predicting the likelihood of moderate-to-severe Anxiety (vs. minimal-to-mild) from demographic and Academic achievement indicators

Variables	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Q2n_Sex(1-Male)	-0.415	0.257	2.600	1	0.107	0.661	0.399	1.093
Q3n_Location(1-Urban)	0.305	0.267	1.304	1	0.253	1.357	0.804	2.292
Q1cat2_Age(15-17)	-0.220	0.255	0.744	1	0.389	0.802	0.487	1.323
Q5_Father's Educational Qualification(primary)			1.110	4	0.893			
Q5_Father's Educational Qualification (1-SSC)	-0.001	0.327	0.000	1	0.997	0.999	0.526	1.895
Q5_Father's Educational Qualification (2-HSC)	0.027	0.394	0.005	1	0.945	1.028	0.475	2.223
Q5_Father's Educational Qualification (3-Graduation)	0.364	0.434	0.703	1	0.402	1.438	0.615	3.364
Q5_Father's Educational Qualification (4- Post-Graduation)	0.392	0.537	0.534	1	0.465	1.481	0.517	4.241

Q6_Mother's Educational Qualification (primary)			2.835	4	0.586			
Q6_Mother's Educational Qualification(1-SSC)	-0.170	0.295	0.335	1	0.563	0.843	0.473	1.502
Q6_Mother's Educational Qualification(2-HSC)	0.041	0.420	0.010	1	0.921	1.042	0.457	2.375
Q6_Mother's Educational Qualification(3-Graduation)	-0.270	0.523	0.267	1	0.605	0.763	0.274	2.125
Q6_Mother's Educational Qualification(4-Post-Graduation)	-0.994	0.681	2.135	1	0.144	0.370	0.097	1.404
Q7n2_Father Occupation (Govt. service)			12.137	6	0.059			
Q7n2_Father Occupation(1-Business)	-0.294	0.457	0.413	1	0.520	0.745	0.304	1.826
Q7n2_Father Occupation(2-Agriculture)	-0.651	0.576	1.274	1	0.259	0.522	0.169	1.615
Q7n2_Father Occupation(3-Abroad)	-0.903	0.516	3.063	1	0.080	0.405	0.147	1.114
Q7n2_Father Occupation(4-Private sector)	-0.101	0.523	0.038	1	0.846	0.903	0.324	2.517
Q7n2_Father Occupation(5-Unemployed)	0.445	0.580	0.587	1	0.444	1.560	0.500	4.864
Q7n2_Father Occupation(6-Others)	-0.953	0.544	3.063	1	0.080	0.386	0.133	1.121
Q16n_psc GPA(GPA 5)			1.048	2	0.592			
Q16n_psc GPA(1-GPA<4)	-0.325	0.558	0.339	1	0.560	0.723	0.242	2.157
Q16n_psc GPA(2-GPA 4-4.99)	0.164	0.261	0.394	1	0.530	1.178	0.706	1.967
Q16n_ssc GPA(GPA 5)			3.684	2	0.158			
Q16n_ssc GPA(1-GPA<4)	-0.089	0.505	0.031	1	0.860	0.915	0.340	2.460
Q16n_ssc GPA(2-GPA 4-4.99)	-0.491	0.282	3.041	1	0.081	0.612	0.352	1.063
Q16n_1yr GPA(GPA 5)			0.724	2	0.696			
Q16n_1yr GPA(1-GPA<4)	0.366	0.431	0.724	1	0.395	1.442	0.620	3.355
Q16n_1yr GPA(2-GPA 4-4.99)	0.271	0.394	0.471	1	0.492	1.311	0.605	2.837
Q17_How many hours per day do you currently study?(6hrs/more)			2.721	3	0.437			

Q17_ How many hours per day do you currently study? (1-less than 2 hrs)	0.308	0.419	0.539	1	0.463	1.360	0.598	3.093
Q17_ How many hours per day do you currently study? (2-2to 4 hrs)	-0.172	0.395	0.190	1	0.663	0.842	0.388	1.826
Q17_ How many hours per day do you currently study? (3-5to6 hrs)	0.081	0.401	0.041	1	0.840	1.084	0.494	2.381
Q18_1_Online classes (1-yes)	0.224	0.322	0.485	1	0.486	1.251	0.666	2.350
Q18_2_Self-study (1-yes)	-0.327	0.275	1.421	1	0.233	0.721	0.421	1.235
Q18_3_Tuition/Coaching (1-yes)	0.375	0.309	1.476	1	0.224	1.455	0.795	2.664
Q18_4_No study (1-yes)	0.738	0.516	2.043	1	0.153	2.091	0.760	5.751
Q19_ How often did you attend online classes during COVID-19? (Never)			1.713	3	0.634			
Q19_ How often did you attend online classes during COVID-19? (1-always)	-0.265	0.452	0.344	1	0.558	0.767	0.316	1.860
Q19_ How often did you attend online classes during COVID-19? (2-sometimes)	-0.050	0.343	0.022	1	0.883	0.951	0.486	1.861
Q19_ How often did you attend online classes during COVID-19? (3-rarely)	0.282	0.378	0.556	1	0.456	1.326	0.632	2.782
Q20n_ I struggle more with focusing on my studies now compared to before COVID-19(1-agree/strongly agree)	0.632	0.311	4.133	1	0.042	1.881	1.023	3.458
Q21n_ My academic performance has declined after the COVID-19 pandemic(1-agree/strongly agree)	0.791	0.319	6.159	1	0.013	2.206	1.181	4.121
Q22n_Online classes during COVID-19 disrupted my regular learning pattern(1-agree/strongly agree)	0.276	0.254	1.183	1	0.277	1.318	0.802	2.166
Constant	-1.115	0.799	1.950	1	0.163	0.328		

Note. 1. *Chi-square test significant at $p < 0.05$. SE = Standard Error; B = Coefficient; OR = Odds Ratio; df= Degrees of Freedom; CI = Confidence Interval; 2. Nagelkerke $R^2 = .248$, indicating the model explains 24.8 % of variance in anxiety category. Hosmer–Lemeshow $\chi^2(8) = 6.41$ ($p = .602$) shows good model fit ($p > .05$). Overall classification accuracy = 66.6 %, i.e. the model correctly predicts 66.6 % of cases.

Table 5: Logistic regression predicting the likelihood of moderate-to-severe Depression (vs. minimal-to-mild) from demographic and Lifestyle Pattern indicators

Variables	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Q2n_Sex(1-Male)	-0.297	0.284	1.091	1	0.296	0.743	0.426	1.297
Q3n_Location(1-Urban)	0.239	0.269	0.787	1	0.375	1.270	0.749	2.152
Q1cat2_Age(15-17)	0.368	0.283	1.694	1	0.193	1.445	0.830	2.517
Q5_Father's Educational Qualification(primary)			2.238	4	0.692			
Q5_Father's Educational Qualification (1-SSC)	0.005	0.348	0.000	1	0.989	1.005	0.508	1.989
Q5_Father's Educational Qualification (2-HSC)	0.057	0.426	0.018	1	0.894	1.059	0.459	2.442
Q5_Father's Educational Qualification (3-Graduation)	0.653	0.489	1.783	1	0.182	1.920	0.737	5.004
Q5_Father's Educational Qualification (4- Post-Graduation)	0.366	0.605	0.366	1	0.545	1.442	0.440	4.723
Q6_Mother's Educational Qualification (primary)			3.177	4	0.529			
Q6_Mother's Educational Qualification(1-SSC)	0.362	0.327	1.225	1	0.268	1.436	0.757	2.724
Q6_Mother's Educational Qualification(2-HSC)	0.157	0.458	0.117	1	0.733	1.169	0.476	2.871
Q6_Mother's Educational Qualification(3-Graduation)	-0.095	0.569	0.028	1	0.868	0.910	0.298	2.772
Q6_Mother's Educational Qualification(4-Post-Graduation)	-0.646	0.739	0.762	1	0.383	0.524	0.123	2.234
Q7n2_Father Occupation (Govt. service)			7.721	6	0.259			
Q7n2_Father Occupation(1-Business)	-0.346	0.520	0.442	1	0.506	0.708	0.255	1.961
Q7n2_Father Occupation(2-Agriculture)	-1.094	0.615	3.167	1	0.075	0.335	0.100	1.117
Q7n2_Father Occupation(3-Abroad)	-0.607	0.585	1.076	1	0.299	0.545	0.173	1.716
Q7n2_Father Occupation(4-Private sector)	0.049	0.604	0.007	1	0.936	1.050	0.322	3.429
Q7n2_Father Occupation(5-Unemployed)	0.071	0.666	0.011	1	0.915	1.074	0.291	3.965

Q7n2_Father Occupation(6-Others)	-0.745	0.602	1.531	1	0.216	0.475	0.146	1.546
Q23n_My daily routine is less organized now compared to before COVID-19(1-agree/strongly agree)	0.784	0.306	6.550	1	0.010	2.190	1.202	3.992
Q24n_My use of social media has increased significantly since the pandemic COVID-19(1-agree/strongly agree)	1.341	0.405	10.972	1	0.001	3.821	1.729	8.447
Q25n_I spend more time indoors and have fewer physical activities after COVID-19(1-agree/strongly agree)	0.354	0.312	1.286	1	0.257	1.425	0.773	2.629
Q26n_I sleep irregular hours since the COVID-19 pandemic(1)	0.802	0.288	7.748	1	0.005	2.229	1.268	3.920
Q27n_How many hours/day do you use social media? (<3hrs)			15.458	2	0.000			
Q27n_How many hours/day do you use social media?(1: 3-5 hrs)	1.029	0.314	10.723	1	0.001	2.799	1.512	5.181
Q27n_How many hours/day do you use social media?(2: >5hrs)	1.183	0.337	12.296	1	0.000	3.264	1.685	6.324
Q28n_How often do you play sports or exercise? (Never)			0.981	2	0.612			
Q28n_How often do you play sports or exercise?(1- 4- 7days/week)	0.068	0.473	0.021	1	0.886	1.070	0.424	2.704
Q28n_How often do you play sports or exercise?(2- occasionally)	-0.228	0.310	0.540	1	0.462	0.796	0.434	1.462
Q29n_How many hours of sleep do you get on average? (less than 5 hrs)			1.638	2	0.441			
Q29n_How many hours of sleep do you get on average?(1:5to7hrs)	-0.222	0.431	0.265	1	0.606	0.801	0.344	1.864
Q29n_How many hours of sleep do you get on average?(2: 8 or more hrs)	0.150	0.471	0.102	1	0.750	1.162	0.461	2.928
Constant	-2.477	0.827	8.974	1	0.003	0.084		

Note. 1. *Chi-square test significant at $p < 0.05$. SE = Standard Error; B = Coefficient; OR = Odds Ratio; df= Degrees of Freedom; CI = Confidence Interval; 2. Nagelkerke $R^2 = .379$ indicates the model explains 37.9 % of variance in depression category. Hosmer–Lemeshow $\chi^2(8) = 7.41$ ($p = .493$) suggests an adequate fit ($p > .05$). Overall classification accuracy = 62.2 %, i.e. the model correctly classifies 62.2 % of cases.

Table 6: Logistic regression predicting the likelihood of moderate-to-severe Anxiety (vs. minimal-to-mild) from demographic and Lifestyle Pattern indicators

Variables	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Q2n_Sex(1-Male)	-0.335	0.267	1.572	1	0.210	0.716	0.424	1.207
Q3n_Location(1-Urban)	0.108	0.253	0.183	1	0.669	1.114	0.678	1.831
Q1cat2_Age(15-17)	0.017	0.264	0.004	1	0.949	1.017	0.607	1.706
Q5_Father's Educational Qualification(primary)			1.689	4	0.793			
Q5_Father's Educational Qualification (1-SSC)	0.047	0.336	0.020	1	0.888	1.048	0.542	2.026
Q5_Father's Educational Qualification (2-HSC)	-0.288	0.400	0.518	1	0.472	0.750	0.342	1.642
Q5_Father's Educational Qualification (3-Graduation)	0.238	0.451	0.278	1	0.598	1.269	0.524	3.072
Q5_Father's Educational Qualification (4- Post-Graduation)	0.266	0.558	0.227	1	0.634	1.305	0.437	3.896
Q6_Mother's Educational Qualification (primary)			2.233	4	0.693			
Q6_Mother's Educational Qualification(1-SSC)	0.065	0.306	0.045	1	0.833	1.067	0.585	1.945
Q6_Mother's Educational Qualification(2-HSC)	0.195	0.429	0.207	1	0.649	1.215	0.525	2.816
Q6_Mother's Educational Qualification(3-Graduation)	-0.146	0.532	0.075	1	0.784	0.864	0.305	2.450
Q6_Mother's Educational Qualification(4-Post-Graduation)	-0.795	0.723	1.209	1	0.271	0.451	0.109	1.863
Q7n2_Father Occupation (Govt. service)			9.724	6	0.137			
Q7n2_Father Occupation(1-Business)	-0.521	0.480	1.182	1	0.277	0.594	0.232	1.520
Q7n2_Father Occupation(2-Agriculture)	-1.126	0.594	3.590	1	0.058	0.324	0.101	1.040
Q7n2_Father Occupation(3-Abroad)	-0.974	0.550	3.136	1	0.077	0.378	0.128	1.110

Q7n2_Father Occupation(4-Private sector)	-0.354	0.535	0.438	1	0.508	0.702	0.246	2.002
Q7n2_Father Occupation(5-Unemployed)	-0.127	0.596	0.045	1	0.832	0.881	0.274	2.836
Q7n2_Father Occupation(6-Others)	-1.202	0.576	4.349	1	0.037	0.301	0.097	0.930
Q23n_My daily routine is less organized now compared to before COVID-19(1-agree/strongly agree)	0.545	0.309	3.102	1	0.078	1.724	0.940	3.160
Q24n_My use of social media has increased significantly since the pandemic COVID-19(1-agree/strongly agree)	0.511	0.411	1.544	1	0.214	1.667	0.744	3.734
Q25n_I spend more time indoors and have fewer physical activities after COVID-19(1-agree/strongly agree)	0.089	0.311	0.081	1	0.776	1.093	0.594	2.011
Q26n_I sleep irregular hours since the COVID-19 pandemic(1)	0.763	0.289	6.992	1	0.008	2.145	1.218	3.776
Q27n_How many hours/day do you use social media? (<3hrs)			16.874	2	0.000			
Q27n_How many hours/day do you use social media?(1: 3-5 hrs)	0.839	0.312	7.226	1	0.007	2.314	1.255	4.266
Q27n_How many hours/day do you use social media?(2: >5hrs)	1.316	0.321	16.776	1	0.000	3.728	1.986	6.997
Q28n_How often do you play sports or exercise? (Never)			6.712	2	0.035			
Q28n_How often do you play sports or exercise?(1- 4-7days/week)	-0.776	0.458	2.873	1	0.090	0.460	0.188	1.129
Q28n_How often do you play sports or exercise?(2-occasionally)	-0.701	0.276	6.425	1	0.011	0.496	0.289	0.853
Q29n_How many hours of sleep do you get on average? (less than 5 hrs)			0.454	2	0.797			
Q29n_How many hours of sleep do you get on average?(1:5to7hrs)	0.086	0.410	0.043	1	0.835	1.089	0.487	2.435

Q29n_How many hours of sleep do you get on average?(2: 8 or more hrs)	0.242	0.439	0.303	1	0.582	1.273	0.539	3.009
Constant	-1.367	0.774	3.117	1	0.077	0.255		

Note. 1. *Chi-square test significant at $p < 0.05$. SE = Standard Error; B = Coefficient; OR = Odds Ratio; df= Degrees of Freedom; CI = Confidence Interval; 2. Nagelkerke $R^2 = .320$ indicates the model explains 32.0 % of variance in anxiety category. Hosmer–Lemeshow $\chi^2(8) = 9.21$ ($p = .325$) indicates good model fit ($p > .05$). Overall classification accuracy = 70.0 %, i.e. the model correctly classifies 70.0 % of cases.

Table 7: Status of assumptions for binary logistic regression models for severity of depression and anxiety.

	Assumptions				
	1	2	3	4	5
	The dependent variable should be measured on a dichotomous scale.	One or more independent variables, which can be either continuous (i.e., an interval or ratio variable) or categorical (i.e., an ordinal or nominal variable).	Should have independence of observations, and the dependent variable should have mutually exclusive and exhaustive categories.	There needs to be a linear relationship between any continuous independent variables and the logit transformation of the dependent variable.	There should be no multicollinearity. It occurs when there are two or more independent variables that are highly correlated with each other.
Domain-specific regression model for depression and anxiety					
SOCIAL CAPITAL					
Severity of depression	Assumption met. (a)	Assumption met. (b)	Assumption met. (c)	N/A. (d)	Assumption met. (e)
Severity of anxiety	Assumption met. (a)	Assumption met. (b)	Assumption met. (c)	N/A. (d)	Assumption met. (e)
ACADEMIC					
Severity of depression	Assumption met. (a)	Assumption met. (b)	Assumption met. (c)	N/A. (d)	Assumption met. (e)
Severity of anxiety	Assumption met. (a)	Assumption met. (b)	Assumption met. (c)	N/A. (d)	Assumption met. (e)
LIFESTYLES					
Severity of depression	Assumption met. (a)	Assumption met. (b)	Assumption met. (c)	N/A. (d)	Assumption met. (e)

Severity of anxiety	Assumption met. (a)	Assumption met. (b)	Assumption met. (c)	N/A. (d)	Assumption met. (e)

Note: (a) The dependent variable is dichotomous and has two levels: 1 = Yes (moderate-to-severe), 0 = No (minimal-to-mild).

(b) All independent variables are categorical, either with a nominal or ordinal scale.

(c) Have independence of observations as data comes from a survey and a cross-sectional study with one response per participant. The dependent variable has two mutually exclusive and exhaustive categories. Each participant belongs to one of the two categories, without overlapping.

(d) N/A = Not applicable. All independent variables are categorical. There are no continuous independent variables.

(e) VIF < 5.0 and Tolerance > 0.1, indicates that all independent variables are not highly correlated with each other. Thus, multicollinearity is not present.