STRATEGIES FOR ENHANCING MODERN CONTRACEPTIVE USE AMONGST MARRIED WOMEN IN BALE ECO-REGION, ETHIOPIA

by

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DECLARATION

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STRATEGIES FOR ENHANCING MODERN CONTRACEPTIVE USE AMONGST MARRIED WOMEN IN BALE ECO-REGION, ETHIOPIA

I declare that the above thesis is my own work and that all the sources that I have used or quoted have been indicated and acknowledged through complete references.

To verify the originality of the content, this thesis has also been subjected to reliable software testing.

I further confirm that this thesis has never been submitted to any institution of higher learning elsewhere before, including submission to UNISA for any degree purpose.



06 July 2026

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ABSTRACT

In the Bale Eco-region (BER), a substantial proportion of married women experience unmet need for Modern Contraceptive Methods (MCM), with increased risk of unintended pregnancies. This study aimed to develop multi-level strategies to enhance MCM use among married women in the Bale Eco-region.

The study used a multi-phase mixed-methods approach, employing an explanatory sequential design in Phases I and II and extending to Phase III for strategy development. It applied stratified cluster sampling to sample 989 married women. Quantitative data analysed using IBM SPSS-25 software. Multi-level mixed-effects logistic regression was used to identify factors associated with the outcome variables. AORs with 95% CI were used to assess the strength of association between variables. Qualitative data were collected from six FGDs among married women and nine KIIs among HEWs. A hybrid inductive–deductive thematic analysis approach, informed by Tesch's eight steps, was used to analyse the qualitative data. The integrated quantitative and qualitative data informed the development of context-specific multi-level strategies in Phase III.

The prevalence of MCM was 36.4%, with marked variation across agro-ecologies (lowland 20.9%, midland 39.7%, highland 41.5%). Injectables were the most used MCM. The unmet need stood at 34.6% (28.3% for spacing, 6.3% for limiting), highest in the lowland stratum (44.2%) and lowest in the highland stratum (30.7%). Key independent predictors of unmet need were women's education, number of children alive, partner's support, peer discussion, and visits by health extension workers, as well as cluster-level women's employment and MCM use. Five overarching deductive themes were developed: intrapersonal, interpersonal, community, institutional, and policy-level

aspects; organising fifteen inductively generated qualitative sub-themes: cognitive ability, self-determination, interpersonal dynamics, psychosocial support, psychosocial pressures, misperceptions, social norms, accessibility, information, competency, method choice, women's empowerment, service quality, gatekeepers' engagement, and multi-sectoral integration. Informed by the integrated results, eighteen strategies tailored to the five levels of the socio-ecological model were developed.

The study findings were translated into multi-level strategies across four strategic pillars (levels of influence): individual empowerment, interpersonal support, community norms and access, and institutional/policy systems, indicating actionable pathways to enhance MCM use among married women in the Bale Eco-region and similar low-resource settings.

Keywords

Bale Eco-region; married women; modern contraceptive methods; socio-ecological model; strategies; unmet needs

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DEDICATION

I dedicate this study to the countless mothers, especially those living in rural and remote communities, who have lost their lives to preventable causes during pregnancy, childbirth, or the postpartum period. Their suffering is a solemn reminder of the profound inequities in access to essential health services.

May this work stand in honour of their memory, and serve as a commitment to advancing equitable, compassionate, and lifesaving care for all women, regardless of where they live.

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LIST OF ABBREVIATIONS

AAA Q	Availability Accessibility Acceptability and Quality
AOR	Adjusted Odds Ratio
CBO	Community Based Organization
COR	Crude Odds Ratio
CSA	Central Statistical Agency
DHS	Demographic and Health Survey
EDHS	Ethiopian Demographic and Health Survey
ECPs	Emergency Contraceptive Pills
FBO	Faith Based Organization
FP	Family Planning
FGDs	Focus Group Discussions
FMoH	Federal Ministry of Health
FP 2020	Family Planning 2020
HIV	Human Immunodeficiency Virus
HSEC	Health Studies Ethical Committee
ICC	Intraclass Correlation Coefficient
ICPD	International Conference on Population and Development
IUC	Intra Uterine Contraception
IUDs	Intra Uterine Devices
IWMI	International Water Management Institute
KIIs	Key Informant Interviews
LAM	Lactational Amenorrhea Method
LARCM	Long-Acting Reversible Contraceptive Methods
MCM	Modern Contraceptive Methods
MCMU	Modern Contraceptive Methods Use
mCPR	Modern Contraceptive Prevalence Rate
MDGs	Millennium Development Goals
MoE	Ministry of Education
MoH	Ministry of Health
MOR	Median Odds Ratio
OCPs	Oral Contraceptive Pills
PHE	Population Health and Environment
PHEEC	Population Health Environment Ethiopia Consortium
PID	Pelvic Inflammatory Disease
RSE	Relative Standard Error
SE	Standard Error
SDGs	Sustainable Development Goals
SEF	Social Ecological Framework
SEM	Social Ecological Model
SETF	Social Ecological Theoretical Framework
SPSS	Statistical Package for Social Sciences
SSA	Sub-Saharan Africa
UI	Uncertainty Interval
UN	United Nations
UNICEF	United Nations International Children’s Fund
VIF	Variable Inflation Factor
VSLA	Village Saving and Loan Association
WHO	World Health Organization

CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

Modern Contraceptive Methods (MCM) are among the most effective interventions to lower the chance of unintended pregnancies, allowing individuals and couples to determine the number of children to have and how far apart to have them (United Nations, Department of Economic and Social Affairs, Population Division 2022a:3). These methods include “oral contraceptive pills, male or female condoms, diaphragms, spermicides and sponges, hormonal or non-hormonal intrauterine devices, implants, injections, contraceptive patches and rings, and emergency contraceptives, and male sterilisation (vasectomy) or female sterilisation (tubal ligation)” (Haakenstad, Angelino, Irvine, Bhutta, Bienhoff, Bintz, Causey, Dirac, Fullman, Gakidou, Glucksman, Hay, Henry, Martopullo, Mokdad, Mumford, Lim, Murray & Lozano 2022:297).

Women who wish to delay or stop childbearing but are not using a contraceptive method are generally classified as having unmet needs for contraception (United Nations Department of Economic and Social Affairs, Population Division 2024a:4). Similarly, Sedgh, Ashford and Hussain (2016:5) describe unmet needs as applying to married women of reproductive age who are biologically capable of conceiving, desire to postpone or delay childbearing, but are not using any contraceptive method. This gap between fertility intentions and actual contraceptive use remains an important indicator of family planning performance and access to reproductive health services (Gebrekidan, Alemayehu & Debelew 2024a:9; United Nations, Department of Economic and Social Affairs, Population Devision 2019:3; United Nations Population Fund [UNFPA] 2020:1).

Kantorova, Wheldon, Ueffing and Dasgupta (2020:8) note that although global use of modern contraceptive methods among married women increased substantially between 1990 and 2019, the decline in unmet needs for modern contraceptive methods was comparatively small, indicating that many women who wish to avoid pregnancy still face barriers to obtaining or continuing a suitable methods that align with their reproductive intention. This persistence reflects not only limited supply but also poor-quality

counselling, fear of side effects, limited choice, weak follow-up, partner opposition, restrictive gender norms, and services that are not fully responsive to women's reproductive intentions. The problem is even more pronounced in low- and middle-income settings, particularly in South Asia and sub-Saharan Africa, where unmet need remains high despite long-standing family planning programmes (Haakenstad et al 2022:297). It also shows that existing interventions have not sufficiently addressed the social, cultural, service delivery, and health-system factors that shape contraceptive access, choice, and continuation. Meeting contraceptive needs in low- and middle-income countries could substantially reduce maternal mortality, underscoring the importance of more effective and context-sensitive family planning interventions (Sully, Biddlecom, Darroch, Riley, Ashford, Lince-Deroche, Firestein & Murro 2020:28).

In Ethiopia, although the overall use of MCM has improved, substantial disparities remain across socio-economic contexts, particularly between urban and rural areas, across regions, and at the community-level, with an unacceptably high unmet need for family planning (Federal Democratic Republic of Ethiopia Ministry of Health 2020:17). In the Bale Eco-region, where service access, socio-cultural norms, and ecological variation strongly shape contraceptive behaviour, local evidence on prevalence, determinants, and tailored interventions is especially scarce. This study therefore addresses an important local research gap by examining the factors influencing MCM use and generating context-specific strategies for the Bale Eco-region.

1.2 BACKGROUND INFORMATION FOR THE RESEARCH PROBLEM

Modern contraceptive methods (MCM) provide significant health-related benefits, including prevention of unintended pregnancies and related complications. They also generate non-health benefits, enhancing women's educational and economic opportunities and promoting family and community well-being (Finlay, Gulaid, Mibenge, Madise, Dodua, Stover, Weinberger, O'Brien & Zimmermann 2025:9; Kelly, Walsh, Delport, Brink, Hughes, Homer, Butler, Adedeji, Beni, Maurizio, Friedman, Marco, Tobar, De la Corte, Richards & Scott 2023:10). Investing in voluntary family planning that ensures access to different modern contraceptive options lowers the risks associated with unintended pregnancies and their treatment costs.

Of the 228 million pregnancies that occurred in LMIC countries in 2019, 111 million were unintended, with 77% of these unintended pregnancies occurring among women who have unmet needs for contraceptive methods (Sully et al 2020:28). Nearly one in 10 women in sub-Saharan Africa and Western Asia experience unintended pregnancies yearly (Bearak, Popinchalk, Ganatra, Moller, Tunçalp, Beavin, Kwok & Alkema 2020:e1156). This indicates that LMICs, where a high proportion of unintended pregnancies occur, would benefit significantly from the successful delivery of MCM to all women who wish to postpone or limit pregnancies (Bearak et al 2020:e1156).

Despite a progressive increase in MCM use worldwide, the sub-Saharan African region remains to have lower MCM use and the lowest percentage (56%) of women whose family planning needs are satisfied by modern contraceptive methods (United Nations, Department of Economic and Social Affairs, Population Division 2022a:7). The 2030 Agenda for Sustainable Development calls for the fulfilment of demand for family planning using effective contraceptive methods as one of the key initiatives to achieve universal access to reproductive health care services (United Nations, Department of Economic and Social Affairs, Population Division 2019:3).

In Ethiopia, considerable efforts have been made to increase modern contraceptive use by married women from 8% in 2000 to 41% in 2019 (Ethiopian Public Health Institute (EPHI) [Ethiopia] and ICF 2019:11; Mankelkl & Kinfe 2023:7). Family Planning services are available at all levels of the health system in Ethiopia, including the public and private health facilities. The public health facilities offer family planning services at no cost, while the private health institutions provide these services at subsidised rates (Directorate, Ministry of Health 2021:7). Despite significant progress in modern contraceptive use in Ethiopia, the prevalence of unmet needs for modern contraceptive methods remained unacceptably high at 22.3% in 2016 (UNFPA, Ethiopia 2023:15). Significant disparities and inequalities in the use of MCM and unmet contraceptive needs appear between the different regions and community contexts in Ethiopia (Mankelkl & Kinfe 2023:5). For example, rural women in Ethiopia had nearly three times more unmet needs for contraceptive methods than women in urban areas (Azanaw, Fentie, Bukayaw, Lakew & Sisay 2022:6). This suggests that rural women are disproportionately exposed to unwanted pregnancies and the risks that come with them due to inequality in the use of modern contraceptive methods (Coulson, Sharma & Wen 2023:2). Therefore, addressing

unmet needs for MCM by married women in Ethiopia remained a priority public health concern (Wondie 2021:6).

The importance of considering the broader contextual factors beyond the individual-level perceptions needs emphasis in understanding the use of modern contraceptive methods (Riese, Assaf, Edmeades, Aladejebi & Phiri 2022:12). Access to contraceptive methods by vulnerable populations is a priority issue from the rights-based and equity perspectives that requires multi-level strategies (Ajayi, Panjwani, Wilson & Garney 2021:212). The analysis of the multi-level determinants guides the design of context-specific strategies and interventions with targets of change at multiple levels (Nurjaeni, Sawangdee, Pattaravanich, Holumyong & Chamratrithirong 2021:12).

1.3 STATEMENT OF THE RESEARCH PROBLEM

Despite Ethiopia's strong commitment to the global family planning initiatives, over 20% of married women still have unmet needs for contraception (Alemu, Workie, Kussa, Gidey & Berheto 2024:7). Although national-level studies identify socio-demographic, service-related, and cultural factors associated with modern contraceptive method (MCM) use (Kapadia-Kundu, Tamene, Ayele, Dana, Heliso, Velu, Berhanu, Alemayehu, Leslie & Kaufman 2022:7; Kebede, Kefale, Yigezu, Bogale, Zewdie, Wasihun & Adane 2023:5; Mulugeta, Muluneh, Belay, Yalew & Agegn 2023:8), and spatial analyses show clusters of low contraceptive use in regions such as Oromia and neighbouring areas (Nimani, Tadese, Tadese & Butta 2023:9). Few studies provide in-depth, locally specific evidence on the multi-level barriers and enablers affecting married women’s use of MCM within particular ecological subregions. Existing interventions and strategies are commonly designed at the national level and do not adequately account for locally specific contextual factors (Ethiopian Public Health Institute (EPHI) [Ethiopia] and ICF 2019:11; Federal Democratic Republic of Ethiopia Ministry of Health 2020:25; Mankelkl & Kinfe 2023:8; Zeleke & Zemedu 2023:4).

Low MCM uptake and persistent unmet need undermine women’s ability to plan and space pregnancies, contributing to higher rates of unintended pregnancy and increased maternal and infant morbidity and mortality (Bearak et al 2020:e1156; Coulson et al 2023:9; Some, Pu & Huang 2021:6). Significant geographic and socio-economic inequalities in MCM use mean that some populations bear a disproportionate burden of

these adverse outcomes (Kibret & Gebremedhin 2022:2). For example, the second highest prevalence of unmet need for modern contraceptive methods in Ethiopia (23.8%) is reported in the Oromia region (the study setting) (Gebrekidan et al 2024a:5), indicating that married women there are less likely to achieve their fertility goals and remain at higher risk of unintended pregnancy and its consequences (Azanaw et al 2022:12; Wasiyhun & Geda 2024:10). Without locally tailored evidence, national programmes may fail to address the intrapersonal, interpersonal, community, institutional, and societal barriers that maintain low MCM use in specific locales.

While existing studies have identified determinants of modern contraceptive use, including socio-demographic and health-service factors, as well as gendered and cultural norms (Azanaw et al 2022:3; Debelew & Habte 2021:5; Gebrekidan et al 2024a:9; Gobena & Kassie 2024:6), none has translated these determinants into a coherent, context-specific set of multi-level strategies grounded in mixed-methods findings and the socio-ecological model within the distinct agro-ecological and socio-economic setting of the Bale Eco-region. Differences in mobility and lifestyle, access to services, strong patriarchal and religious influences, and fertility preferences in the Bale Eco-region may shape accessibility, acceptability, and continuity of modern contraceptive methods in ways national strategies do not adequately capture. Consequently, policymakers and practitioners lack an empirically derived, theoretically informed roadmap for addressing the interacting individual, interpersonal, community, institutional and policy barriers faced by married women in this region. This study therefore addresses a critical gap in the Bale Eco-region and similar settings by developing evidence-based, context-specific strategies to improve married women's uptake of modern contraceptive methods.

1.4 PURPOSE OF THE STUDY

A purpose statement in a study is a critical statement representing the intent or objectives that clearly present the major idea of the research (Creswell & Creswell 2023:291). The general research purpose, the research questions and the specific research objectives are presented in this section. The purpose of this study was to develop strategies for enhancing the use of modern contraceptive methods amongst married women in the Bale Eco-region, Ethiopia.

1.4.1 Research question

The primary research question of this study is: How can the use of modern contraceptive methods by married women in the Bale Eco-region, Ethiopia, be enhanced through strategies informed by an investigation of locally specific barriers and enablers across socio-ecological levels?

1.4.2 Research objectives

A research objective is a concise statement outlining what the study aims to achieve, presented in specific and actionable goals that are usually derived from the research questions and hypothesis (Barroga & Matanguihan 2022:2; Jain 2023:1). The research objectives in this study presented what the researcher intends to accomplish and hoped to learn or discover through the research. The following objectives guided the researcher:

- To determine the prevalence of modern contraceptive methods use amongst married women in the Bale Eco-region, Ethiopia.
- To determine the prevalence of unmet needs for modern contraceptive methods amongst married women in the Bale Eco-region, Ethiopia.
- To identify factors associated with unmet needs for modern contraceptive methods amongst married women in the Bale Eco-region, Ethiopia.
- To describe the barriers to the use of modern contraceptive methods amongst married women in the Bale Eco-region, Ethiopia.
- To explain the enablers that promote the use of modern contraceptive methods amongst married women in the Bale Eco-region, Ethiopia.
- To develop strategies for improving the use of modern contraceptive methods among married women in the Bale Eco-region, Ethiopia.

1.5 SIGNIFICANCE OF THE STUDY

A significant aspect of the study is the section where the researcher explains the importance or contribution of the research and its potential benefits to society and to particular readers or audiences (Adu & Badaru 2022:32). It is through understanding the

significance that researchers explain the importance of the study to the broader scientific community (Alshdadi, Usman, Alassafi, Afzal & AlGhamdi 2023:1825).

This study first analysed the multi-level factors associated with the use of modern contraceptive methods and unmet needs for contraception amongst married women in the Bale Eco-region. Then it further explored the barriers to contraceptive use and described the reasons for the non-use of effective contraceptive methods by married women despite having felt the desire to postpone or limit childbirth. Thus, a comprehensive understanding of the socio-ecological perspectives on MCM use and unmet needs informs the design of optimal strategies for improved MCM use. The researcher developed multi-level strategies and identified leverage points across the socio-ecological ladder that fit the specific community context to enhance MCM use among married women in the Bale Eco-region.

The epistemological importance of this study lies in its contribution to reproductive health research within the broader field of public health, with specific implications for health policy and health systems strengthening. It contributes to the field in three distinct but complementary ways. Theoretically, it advances understanding of modern contraceptive use by applying the socio-ecological model to explain how intrapersonal, interpersonal, community, institutional, and policy-level factors interact to shape contraceptive behaviour and unmet need among married women in the Bale Eco-region. Methodologically, it moves beyond descriptive or single-method studies by using a mixed-methods design to generate a deeper, context-specific interpretation of both the magnitude of the problem and the reasons underlying non-use, and by translating these findings into a structured set of multi-level strategies. Practically and policy-wise, it provides an evidence-based, eco-region-specific intervention package that identifies feasible leverage points to improve modern contraceptive use in a low-resource, socio-culturally distinct setting.

This moves beyond descriptive or single-method studies by generating an eco-regional, multi-level intervention package tailored to a low-resource setting. In doing so, the study offers actionable guidance for the Oromia Regional State Health Bureau, the Ethiopian Ministry of Health, and development partners seeking to reduce unmet need and improve reproductive health outcomes in ecologically diverse communities.

1.6 DEFINITION OF KEY CONCEPTS

The term “key concepts” refers to words or phrases that summarise ideas, observations and experiences (Kim 2025:935). The conceptual and operational definitions of the key concepts and constructs of this study are presented in the following section. According to Kviz (2023:5), an operational definition is the mechanism by which a concept can be observed by collecting data on one or more variables. This section defines the key concepts and operational definitions of the dependent variables (modern contraceptive method use and unmet needs for modern contraceptive methods).

1.6.1 Modern contraceptive methods

According to the United Nations, Department of Economic and Social Affairs, Population Division (2020:8) the modern methods of contraception include: “female and male sterilisation, the intra-uterine device (IUD), implants, injectables, oral contraceptive pills, male and female condoms, vaginal barrier methods (including the diaphragm, cervical cap and spermicidal foam, jelly, cream and sponge), lactational amenorrhea method (LAM), and emergency contraception” which are more effective in preventing unwanted pregnancies than the traditional methods.

1.6.2 Modern contraceptive method use

Modern Contraceptive Method Use refers to married women who were currently using, or whose partner is using, at least one of the modern contraceptive methods (Haakenstad et al 2022:297). In this study, modern contraceptive method use is defined as the use of at least one of the modern contraceptive methods by a married woman or by her partner during the time of the data collection.

1.6.3 Unmet needs for modern contraceptive methods

Unmet needs for modern methods of contraception describes a condition in which married women who are biologically capable of conceiving wish to delay or prevent pregnancy but are not utilising any modern contraceptive method. It includes women who are not using any contraceptive methods or using less effective traditional family planning methods, despite wanting to space or limit childbirth (Bradley, Croft, Fishel, Westoff,

Trevor, Joy & Charles 2012:13). For the purpose of this study, unmet needs for modern contraceptive methods is understood as the proportion of married women between 18-49 years of age living in the study area, who are biologically capable of conceiving and sexually active, and who express a preference to either delay their next pregnancy for two or more years or to cease childbearing entirely, but who are not making use of any modern contraceptive method at the time of data collection. It also includes those married women who are currently pregnant or postpartum amenorrhea during data collection, whose current pregnancy or recent childbirth was mistimed or unintended, indicating preferences to postpone pregnancies for at least two years or to stop childbearing altogether (Mechal, Negash, Bizuneh & Abubeker 2022:3).

1.6.4 Married woman

For the purpose of family planning indicators definition, the category “Married or in-union women” is presented in (United Nations, Department of Economic and Social Affairs, Population Division 2020:8), as the category of women “who are legally married according to a country’s laws or customs, as well as women living with a partner in the same household.” The latter group is often described as cohabiting, consensual, or unmarried unions, essentially couples who are living together. In this study, a woman who self-reported as married or having a husband or a sexual partner who lived with her in the same house by the time of the data collection was considered a married woman.

1.6.5 Strategies for modern contraceptive use

Strategies for modern contraceptive use are defined as the specific approaches and methods used to promote and enable individuals and couples to make informed decisions about the number and spacing of their children (Memon, Tahmeena, Fazal, Reale, Spencer, Bhutta & Soltani 2024:7).

1.6.7 Eco-region

In this study, Eco-region refers to the Bale Eco-region (BER), a defined geographic and ecological area spanning the Bale and West Arsi Zones of the Oromia Regional State, Ethiopia, characterised by distinct agro-ecological zones (highland, midland, lowland) and variation in altitude, topography, climate, settlement patterns, and livelihood systems.

Operationally, each of the sampled kebeles was classified into one of three agro-ecological strata based on its dominant altitude: highland (>2,300 masl), midland (1,500–2,300 masl), or lowland (<1,500 masl). This classification stratifies sampling, analyses disparities in modern contraceptive method use and unmet need, and guides development of context-specific multi-level interventions tailored to each ecological zone.

1.7 THEORETICAL FOUNDATIONS OF THE STUDY

A study's theoretical foundation is stated as a collection of interconnected constructs and variables in the form of propositions and assumptions recognised by previous research that provides the researcher with a comprehensive perspective while investigating the research problem (Creswell & Creswell 2023:297). It offers a framework for comprehending the fundamental ideas and facilitates the development of research topics, theories, and data collection techniques. The section below introduces the theoretical framework and philosophical paradigm of this study.

1.7.1 Research paradigm

The term research paradigm refers to the researcher's overarching worldview or school of thought encompassing a set of shared assumptions that guide data interpretation and meaning-making (Khatri 2020:1439). As Kamal (2019:1388) notes, a paradigm encompasses philosophical positions on ontology, epistemology, methodology, and axiology. In contrast, a study's paradigmatic perspective denotes the specific philosophical orientation adopted by the researcher, operationalising the broader paradigm into concrete methodological choices (Khatri 2020:1439). Thus, research paradigm and paradigmatic perspective are conceptually linked: the paradigm serves as the overarching framework of shared assumptions and guiding principles within a research community, while the paradigmatic perspective (or orientation) is the researcher's specific adoption and application of that framework to their study.

Complementing this, Turin, Chowdhury and Raihan (2024:1) describe a research paradigm as "a collection of guiding principles that determine what values or norms guide the research (axiology), how the researcher perceives the nature of knowledge (epistemology), the nature of reality (ontology), and the techniques employed for data collection and analysis (methodology)." In the present study, this linkage is grounded in

a pragmatist worldview, which underpins the integration of quantitative and qualitative strands to generate actionable evidence.

1.7.2 Assumptions underlying the study

It is the application of these philosophical assumptions that enables scientists to transform concepts into knowledge through scientific research (Žukauskas, Vveinhardt & Andriukaitienė 2018:57). For a research finding to be dependable, the philosophical assumptions on which the study is grounded and the application of its paradigmatic principles need to be in line with the study's goals, its design and methodology (Shannon-Baker 2023; Alharahsheh & Pius 2020:39). In addition, understanding the philosophical assumptions helps establish the researcher's stance on moral and artistic concerns during the research process (Khatri 2020:1439).

The theoretical assumptions and the research's philosophical stances related to the ontological, epistemological, methodological and axiological assumptions of this research are presented in the section below.

1.7.2.1 Theoretical assumptions

Theoretical assumptions are the underlying beliefs and principles based on existing theories and frameworks that influence the research question, hypothesis, methodology, and interpretation of the results, as well as the researcher's comprehension of the topic under study (Cypress 2017:209). By having a clear theoretical assumption, a study grounds its foundation on established knowledge and contributes to the broader academic discourse (Allana & Clark 2018:1).

For the purpose of this study the theoretical assumptions are grounded in the socio-ecological theoretical framework, which theorises that the factors that influence individual behaviour goes through several layers of influences, including intrapersonal, interpersonal, community, and societal factors (Manet, Doucet, Bangoura, Dioubaté, El Ayadi, Sidibé, Millimouno & Delamou 2023:9; Ezenwaka, Mbachu, Ezumah, Eze, Agu, Agu & Onwujekwe 2020:1). This model assumes that understanding the barriers that inhibit married women's use of modern contraceptives require examining not only individual-level knowledge and attitudes, but also the broader social and environmental

factors in which these women live. It emphasises that individuals' decisions and behaviours are shaped not only by their characteristics but also by their broader social and environmental factors (Ezenwaka et al 2020:1; Manet et al 2023:9). By using this theoretical framework, the research hopes to offer a comprehensive analysis of the multifaceted barriers to MCM use that informs the development of effective strategies.

1.7.2.2 Ontological assumptions

Gannon, Taheri and Azer (2022:2) present ‘ontology’ as the collective philosophical presumptions regarding the nature of reality. The ontological assumptions are the researchers' beliefs about reality, which determine whether the researchers believe in a singular objective reality or multiple subjective realities (Elder-Vass 2022:276; Fetters 2023:17).

The researcher's ontological assumption takes a realist–constructivist stance: reality exists as measurable social patterns and structural distributions (realist position), yet its conceptualisation and meaningful interpretation are constructed through individuals' experiences and perceptions (constructivist position). Accordingly, the researcher believes that quantitative analysis can identify socio-ecological factors and barriers affecting married women's use of modern contraceptive methods (MCM), while qualitative analysis of women's lived experiences and narratives is necessary to interpret these factors and develop strategies tailored to real needs. This dual ontological view recognises that reality is shaped by both measurable structural influences and context-specific perceptions, enabling a more comprehensive and nuanced understanding of unmet contraceptive needs than either method alone. This ontological stance aligns with a pragmatic epistemology, where knowledge is generated through both objective measurement and subjective interpretation.

1.7.2.3 Epistemological assumptions

Epistemological assumptions concerns with the nature of knowledge and how it is acquired (Gannon et al 2022:1). This study is grounded in a pragmatist research paradigm, which holds that knowledge is validated by its practical usefulness in addressing real-world problems and permits methodological flexibility to answer the research question (Turin et al 2024:3). From this pragmatist epistemological standpoint,

valid knowledge can be produced both by quantitative empirical observation (e.g., statistical estimates of MCM use and unmet need) and by qualitative interpretation of participants' lived experiences and meanings (Elder-Vass 2022:261). The pragmatist paradigm thus rejects the either/or dichotomy between objective and subjective knowledge, instead embracing both as complementary sources of actionable insight. Integrating these sources allows the study to generate evidence that is both generalisable and context-sensitive, supporting the development of actionable, locally relevant strategies to improve modern contraceptive use among married women in the Bale Eco-region.

1.7.2.4 Methodological assumptions

Methodological assumptions are the beliefs that guide the choice of appropriate methods, procedures, and techniques in research. These beliefs inform the selection of research design, research strategy, procedures and techniques related to sampling, data collection and analysis (Alharahsheh & Pius 2020:39).

This study was guided by the methodological assumption that complex public health challenges, such as the underutilisation of MCM methods, particularly among married women in a socio-ecologically diverse setting, are best understood through a multi-phase mixed-methods design integrating quantitative measurement, qualitative exploration, and evidence translation. Such pragmatist methodological assumptions are essential when a comprehensive understanding of the phenomenon under investigation requires both numerical data that establish generalisable findings and qualitative insights that provide deeper context and meanings to the quantitative findings (Creswell & Creswell 2023:285; Sharma, Bidari, Bidari, Neupane & Sapkota 2023:5).

Specifically, this multi-phase mixed-methods study employed an explanatory sequential design in Phases I and II, beginning with a quantitative survey to determine the prevalence of MCM use, assess the magnitude of unmet needs for MCM, and identify factors associated with unmet needs in the Bale Eco-region. These findings were subsequently elaborated through qualitative inquiry using FGDs and KIIs to describe context-specific barriers and enablers of MCM use. The third phase extended the design into a multi-phase framework by integrating the quantitative and qualitative wings to develop context-specific, multi-level strategies to enhance MCM use. This methodological

orientation assumed that neither a quantitative nor a qualitative approach would be sufficient; rather, their sequential integration, grounded in the socio-ecological theoretical framework, would provide a comprehensive understanding of individual-, community-, and societal-level determinants, while also ensuring that the research ended in actionable strategies responsive to local realities. The details of the methods and procedures applied in this research are presented in Chapter 3 below.

1.7.2.5 Axiological assumptions

Schwandt (2023:17) presents axiology as the study of what things are right and how right they are, or the philosophical study of values and value theory. Whereas, Creamer (2018:5) labels axiology as “the role of values in social inquiry.” The researcher corresponds with the conclusion given in (Kryukov, Kicheev & Sotnikova 2021:12), that a person’s ethical values, morals, and principles of truthfulness serve as the basis for professional integrity. The study was guided by a human rights-based axiology: reproductive rights, autonomy, and informed choice were primary values, balanced against community and religious norms, as well as power asymmetries between providers and marginalised women. The researcher ensured this stance by carefully developing culturally sensitive interview guides, training the data collectors, and implementing consent procedures to reduce community coercion. Reflexive practices (field notes and debriefs) and safeguards (local-language consent, confidentiality) were used to identify and mitigate power imbalances and to protect participants.

The detailed methodological aspects are presented in Chapter 3.

1.7.3 Theoretical framework

Researchers use theoretical frameworks to present the theoretical basis of the work to be undertaken, draw on existing theories in the field of study that guide the investigation and study design, and establish a link between the findings and the body of knowledge (Passey 2020:7; Salawu, Bolatitio & Masibo 2023:2104). According to Luft, Jeong, Idsardi and Gardner (2022:33), researchers are expected to carefully articulate the theoretical framework that illuminates the phenomenon under study, drives the research questions, guides the procedures for data collection and analysis, and informs the interpretation of

the findings. The researcher used the Socio-Ecological Theoretical Framework (SETF) as the theoretical foundation for this study, which is presented in the next section.

1.7.3.1 Social Ecological Theoretical Framework

The Social-Ecological Theoretical Framework, first introduced by Urie Bronfenbrenner in 1970, provides a comprehensive model for understanding human development within the context of multiple, interacting environmental systems (Bronfenbrenner 1994:37; Guy-Evans 2024:7). This model generally conceptualises behaviour as emerging from nested systems operating at intrapersonal, interpersonal, institutional, community and policy levels (Scarneo, Kerr, Kroshus, Register-Mihalik, Hosokawa, Stearns, DiStefano & Casa 2019:359). Since its inception, the SETF has undergone significant refinements. During the 1980s and 1990s, Bronfenbrenner emphasised the dynamic and reciprocal nature of these systems, advocating for research situated in real-world context (Bronfenbrenner 1994:37). In later work, Bronfenbrenner introduced the concept of proximal processes, enduring bidirectional interactions between individuals and their environment as the primary mechanisms of human development. The perspective further incorporates individual characteristics and temporal dimensions, underscoring the complex interplay of biology, context, and experience (Guy-Evans 2024:10). Today, the SETF remains foundational in psychology, education, and public health, offering a nuanced lens for analysing human development and behaviour (Johannes & Roman 2025:2).

Intervention approaches that consider the socio-ecological model recognise that determinants of individuals' behaviour exist at multiple levels, are interrelated and extend beyond the individual level (High Impact Practices in Family Planning [HIPs] 2022a:2). Family planning programmes and strategies should be aligned to the specific community context and explicitly developed to address the multi-level determinants of MCM use (Nurjaeni et al 2021:12). Previous researchers using the SETF in investigating determinants of modern contraceptive use in different contexts informed the importance of targeting the complex interplay between factors at the intrapersonal, interpersonal, community, institutional and societal or policy levels (Ajayi et al 2021:219; Nurjaeni et al 2021:12). The researcher used the SETF to explore barriers and enablers of Modern Contraceptive Method use among married women in the Bale Eco-region. Thus, using this framework enabled the researcher to consider various social, economic, and

environmental factors and develop comprehensive strategies to effectively enhance the use of modern contraceptive methods in the study area.

1.8 INTRODUCTION TO THE RESEARCH METHODOLOGY AND DESIGN

Research methodology is the systematic science of examining a research problem and providing a methodical explanation of it through established procedures (Swarooprani 2022:537). Mahawar (2020:4) emphasises that research methodology encompasses the researcher's philosophical premise, the research design that operationalises the premise, and the specific techniques and processes that implement the chosen approach. The philosophical assumption or paradigm, in turn, provides a clear perspective on how reality or truth is understood, how knowledge is acquired, and through which methods it is pursued (Khatri 2020:1436). Guided by these assumptions, this study adopted a multi-phase mixed-methods approach, employing an explanatory sequential design in Phases I and II (beginning with a quantitative survey followed by a qualitative inquiry) and extending to a third phase focused on strategy development. The section below (Table 1.1) summarises the research design and methods applied in this study.

Table 1.1 Summary of research phases, objectives, methods, and data analysis

Phase	Objectives	Methodology	Population	Sampling method	Data collection	Data analysis
Phase I: Quantitative approach	• To determine the prevalence of modern contraceptive method use amongst married women in the Bale Eco-region, Ethiopia • To determine the prevalence of unmet needs for MCM amongst married women • To identify factors associated with unmet needs for MCM amongst married women	The study setting covers 16 districts in the Bale Eco-region (BER), south-eastern Ethiopia. A quantitative research approach was used.	Married women aged 18 to 49 years living in the BER	A stratified, two-stage cluster sampling technique was used. The kebeles in the BER were stratified based on the altitude into Highland, Midland and Lowland strata. Participants were selected using the systematic random sampling technique.	A survey was conducted to collect quantitative data using a structured interview schedule administered by six trained enumerators.	• SPSS software version 25 for analysis. • Descriptive and inferential analysis techniques were used. • Multi-level logistic regression analysis was used to identify factors at the different levels of the socio-ecological model that influence MCM use and unmet needs. Intraclass Correlation Coefficient (ICC) and Median Odds Ratio (MOR) were used to assess variances in odds of MCM use and unmet needs for MCM across clusters. • Adjusted Odds Ratios with 95% CI.
Phase II: Qualitative approach	• To describe the barriers to the use of modern contraceptive methods amongst married women • To explain the enablers that promote the use of modern contraceptive	A qualitative approach was applied to gather qualitative data from the highland, midland and lowland stratums representing The various socio-ecological	Married women aged between 18-49 years who live in the BER and Health Extension Workers who provide family planning services to communities in the BER	Purposive sampling technique was used.	FGDs and KIIs were used to collect qualitative data.	• Audio-recorded FGDs and KIIs were transcribed verbatim and translated into English. • Transcripts were organised and made ready for analysis. • A thematic qualitative analysis guided by Tesch's eight steps was used. • The researcher and another expert performed the coding process following Tesch's steps. • The coding process followed mainly inductive approach where

Phase	Objectives	Methodology	Population	Sampling method	Data collection	Data analysis
	methods amongst married women	contexts of the BER				topics, codes and sub-themes were generated directly from the transcripts. • It also used a deductive approach where the lens of socio-ecological model was applied in the final interpretation and framing of the findings.
Phase III: Strategies Development	• To develop strategies for enhancing the use of modern contraceptive methods among married women in the Bale Eco-region, Ethiopia	Strategic Framework Development using three general steps: 1) Information generation step, 2) Result formulation step, and 3) Action plan development step	Evidence from Phases I and II	Evidence from Phases I and II. Socio-ecological analysis technique was used to examine multiple layers of influence on modern contraceptive use by married women.	Review and synthesis of the context, existing programmes, and key findings from quantitative and qualitative data to identify key barriers and factors across the different levels of the socio-ecological model that influence MCM use by married women in the Bale Eco-region, Ethiopia.	• The socio-ecological analysis in the design of strategies enabled the researcher to organise the problems at the intrapersonal, interpersonal, community, institutional and societal level and develop strategies that respond to the problems at each level. • Result formulation was made by setting strategic goals, objectives, outcomes, and outputs for the identified problems. • Targets and indicators were set to monitor results at each of the socio-ecological levels. Finally, the researcher developed strategies with activity matrices and recommended their application in the Bale Eco-region.

The details of the research design and methodology are discussed in Chapter 3 of this study below.

1.9 STRUCTURE OF THE STUDY

The organisation of the chapters in this thesis aligns with the logical and thematic flow of the data analysis and presentation in a multi-phase mixed-methods study employing an explanatory sequential design. The structure of this research is outlined in the seven chapters of this thesis below.

Chapter 1: Orientation of the study

This chapter serves as the foundation of the thesis, introducing the reader to the study's main units of analysis, which are described and discussed in detail in subsequent chapters. The central premise of the structure of this chapter is the focus on the perspectives of modern contraceptive methods use and unmet need for contraception linked to the background of the research problem and the statement of the research problem, highlighting the significance of strategies that enhance modern contraceptive methods utilisation among married women in the Bale Eco-region, Ethiopia. The chapter outlines the aims and objectives of the study. It also examines the theoretical foundation underpinning the study, outlining the research paradigm and theoretical framework that guide it. Additionally, this chapter introduces the research design and methodology.

Chapter 2: Literature review

This chapter reviewed literature on strategies to enhance MCM use among married women in the Bale Eco-region. It covers family planning's importance and state in Ethiopia, MCM prevalence, unmet contraception needs, and barriers to MCM use. The chapter highlights successful MCM promotion strategies and introduces the Social-Ecological conceptual framework, which considers multiple factors influencing contraceptive use to guide effective strategy development.

Chapter 3: Research design and methods

This chapter presents the research design, methods, and procedures used in the study, beginning with the research paradigm and mixed-methods approaches, outlining the quantitative approach, followed by qualitative research, and integrating findings to inform the phases of strategy development. The chapter also provides the study population, sampling techniques, and the instrument employed to collect, analyse, and present the quantitative and qualitative data. It also highlights the ethical protocols observed and the methodological measures taken to ensure the rigour and validity of the findings. By presenting these elements clearly, Chapter 3 of this thesis reinforces the transparency of the research process and supports its replicability.

Chapter 4: Data management, analysis and presentation of the research findings

Chapter 4 of the thesis presented the qualitative and quantitative data management, data analysis and findings, and the data integration approach. It begins with the presentation of the study area and data source, followed by the data management and analysis techniques used in both the qualitative and quantitative phases of the study. It first presents a detailed analysis of the quantitative data, including descriptive statistics and multi-level logistic regression results. Then it describes qualitative data analysis techniques and highlights key insights from focus group discussions and key informant interviews. Lastly, it presents the main tenets derived from the mixed results, which served as the basis for developing multi-level strategies.

Chapter 5: Data integration, interpretation and discussion

In Chapter 5, the researcher presents the integration of quantitative and qualitative data using a side-by-side joint display table. Highlights how the data integration aligns with the socio-ecological theoretical framework underpinning the study. The barriers and enablers of MCM use at various levels of the socio-ecological model were interpreted and discussed in Chapter 5.

Chapter 6: Strategies development for enhancing modern contraceptive methods

Chapter 6 focuses on developing strategies for enhancing modern contraceptive methods use amongst married women in the Bale Eco-region. The theoretical frameworks for developing strategies are presented. It also synthesises the key findings from the quantitative and qualitative phases, identifying barriers and enablers of MCM use at the different levels of the socio-ecological model. The chapter outlines strategic goals and objectives aimed at enhancing MCM use among married women in the Bale Eco-region. It also presents a detailed implementation plan, including activity matrices and monitoring indicators, that guide the application of the proposed strategies.

Chapter 7: Conclusions, limitations and recommendations

Chapter 7 draws together the main conclusions and recommendations of the study. It confirmed that all six research objectives and questions were addressed, showing the added value of integrating quantitative and qualitative data in the development of multi-level strategies. The chapter presented objective-specific conclusions, acknowledged key methodological and contextual limitations of the study, and outlined targeted recommendations for different stakeholders, as well as priorities for future research. It ended with the researcher's personal reflection on the research journey and the extent to which the study contributed to the intended personal, professional and academic development.

1.10 SUMMARY

This chapter outlined the background of the study, the problem statement, the study purpose and objectives, the research questions, the significance of the study, the definition of concepts, and the study variables. The chapter also introduces the reader to the main units of analysis, the design and methods used in the qualitative and quantitative phases, and the theoretical foundation, which are presented in greater detail in subsequent chapters.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Literature review involves a critical and thorough assessment of earlier research that provides a summary of evidence on a specific discipline that informs the reader about the drive behind the proposed research (Zaccagnini & Li 2023:1296). Analysing and synthesising a literature or group of literature on previous works enables researchers to understand, challenge, and advance the building blocks of a theory, indicating how the research in hand builds on or diverges from the existing evidence (Post, Sarala, Gatrell & Prescott 2020:366). According to Kraus, Breier,Lim, Dabić, Kumar, Kanbach, Mukherjee, Corvello, Piñeiro-Chousa, Liguori, Palacios-Marqués, Schiavone, Ferraris, Fernances and Ferreira (2022:2578), a comprehensive literature review helps researchers better grasp the body of work already done in their field, quickly identify methodological and knowledge gaps in the literature, and identify possible areas for future research.

The literature review in this study established the foundation, clarifying the context for the development of strategies to enhance MCM use by married women in the Bale Eco-region. The literature search focused on scholarly papers, research articles, grey literature, theories, reports, strategies, policies and government documents in various countries and contexts. This chapter presents the literature review, which presents an overview of the literature search strategy, overview of modern contraceptive method use, importance of modern contraceptive methods, prevalence of modern contraceptive method use, the prevalence of unmet needs of modern contraceptive, the multi-level barriers to modern contraceptive use, factors associated with modern contraceptive use, factors associated with unmet needs for modern contraceptives, and strategies for improved modern contraceptive use. The Social-Ecological Theoretical Framework was used to structure the literature review across the intrapersonal, interpersonal, community, institutional, and societal levels.

2.2 LITERATURE SEARCH STRATEGY

A literature search strategy is an organised approach for identifying and retrieving relevant evidence from literature on a specific topic (Atkinson & Cipriani 2018:75). To capture relevant literature related to MCM use and unmet needs for contraceptives amongst married women, the researcher started by breaking down the specific research objectives into their key concepts as a base for creating a search strategy from the literature. The identified key concepts and their synonyms include: “modern contraceptive methods use” or “family planning utilisation” or “unmet needs,” “prevalence” or “factors” or “determinants” or “barriers” or “enablers” or “facilitators” or “strategies,” “married women” or “women of reproductive age” or “women aged 15-49,” “Bale Eco-region” or “Oromia region,” “Socio-ecological Model” or “Socio-ecological Framework.” The Boolean operator “OR” was used to group synonyms and broaden the search; again, the Boolean operator “AND” was used to link different concepts, narrowing the search for studies addressing all aspects.

Different search engines and journals, including Google Scholar, PubMed, the Web of Science, Scopus, Medline, Research Rabbit, and the Cochrane database; PlosOne, Biomedical Sciences, Reproductive Health, and Midwifery Journal; World Health Organisation, UNICEF, and Guttmacher Institute websites, and other Open Access sources were visited to identify relevant papers related to the research topic. To ensure the identified papers met the inclusion criteria for the literature review, their titles, abstracts, keywords, and publication years were examined. The researcher read, reread, and summarised key points on concepts and evidence related to the research topic and objectives from the identified papers.

2.3 OVERVIEW OF MODERN CONTRACEPTIVE METHOD USE

Modern contraceptive methods (MCMs) are medically accepted methods or procedures that prevent pregnancy by interfering with reproduction, and they enable people to have the desired number of children and decide the interval between pregnancies (Menning & Schindler 2022:1439). This includes not only contraceptive methods but also education, counselling, and access to services (Sahay, Joseph, Prashad, Yadav, Jha, Vachhar & Seth 2021:6).

By providing access to a variety of MCMs alongside education and counselling, family planning programmes promote better health outcomes among women and support girls remaining in school (De Silva, Jadhav, Fabic, Munthali, Oyedokun-Adebagbo & Kebede 2024:8). Additionally, modern contraceptive methods contribute to poverty reduction and sustainable development by allowing families to plan and space their children according to their financial and personal circumstances (De Silva et al 2024:8). On a larger scale, reduced fertility rates contribute to economic growth by lowering youth dependency and increasing women's participation (United Nations, Department of Economic and Social Affairs, Population Division 2020:1).

The introduction of the oral contraceptive pill and intrauterine device (IUD) in the early 1960s generated pleasure worldwide, where many countries initiated national family planning programmes to provide contraceptive methods to their populations (Paz 2022:9). In the late 1960s, additional modern contraceptive technologies, such as female sterilisation techniques and later the injectable method, were developed as means of birth control (Anderson & Johnston 2023:155; Bongaarts & Hodgson 2022:9; Paz 2022:7).

The promotion of modern contraceptive use before the 1990s mainly focused on fertility control with less consideration for reproductive rights (Butler, Erken, Hurskin, Passanisi, Said & Smith 2019:10). The importance of universal access to sexual and reproductive health, including voluntary contraceptive methods, as an essential human right was recognised in the International Conference on Population and Development (ICPD) in 1994 (Ravindran & Govender 2020:106). Global leaders' and governments' commitments to meet couples' and individuals' reproductive goals are indicated in the ICPD Programme of Action and pledged to leave no one behind in the 2030 Agenda for Sustainable Development (United Nations Department of Economic and Social Affairs, Population Division 2020:1).

Although contraceptives are widely used, many women around the world still face barriers to access effective contraceptive methods because of various factors (Tirumalasetti, Xu, Sneed & Pathak 2022:20). Despite advancements in most health-related indicators of the sustainable development goals (SDGs), the 2024 Summit of the future reported that progress in modern contraceptive use remains insufficient to meet the 2030 targets (Barcelona & Edouard 2024:11). The latest 2024 SDG progress report emphasised that the poor and vulnerable groups were the most disadvantaged, showing only minimal or

moderate progress in contraceptive use during recent days indicates increased support for family planning is necessary to fulfil the promise to ensure universal access to sexual and reproductive healthcare services, information, and education by 2030, including through the implementation of effective government policies and programmes (Barcelona & Edouard 2024:11; United Nations, Department of Economic and Social Affairs, Population Division 2020:9).

The transition from Family Planning 2020 to Family Planning 2030 established a global partnership that actively advances the Sustainable Development Goals (SDGs) by prioritising voluntary and rights-based family planning (Kamuyango, Arora, Raney, Ali & Chandra-Mouli 2024:1). This initiative mobilises commitments from multiple countries, thereby strengthening efforts to expand equitable access to modern contraceptive services and reinforcing reproductive health as a central component of sustainable development strategies.

Similarly, the introduction of modern contraceptive methods in Ethiopia began in 1966 with the foundation of the Family Guidance Association Ethiopia (FGAE) (2020:1), which began offering family planning services to people in need. In the 1970s' and 1980s,' the FP clinic expanded considerably in Ethiopia after the first one was established in Addis Ababa. In 1970, the FGAE became an associate member of the International Planned Parenthood Federation (IPPF), which helped Ethiopia receive financial and technical support (Habtie 2022:2). The government then acknowledged its role in mother and child health in the 1990s, started incorporating family planning services into the larger healthcare system, and attempted to establish a supportive atmosphere for giving family planning services priority across a number of sectors (Kibret & Gebremedhin 2022:2). The Ethiopian government's commitments to family planning are often reflected in the various policies and the government's strategic plans (Ministry of Health 2020a:6). For instance, Ethiopia led and was in a superior position in terms of the number of family planning-related laws put into place since 1966, according to a policy analysis of five nations, including Ethiopia, Rwanda, Brazil, Egypt, and Ecuador (Hellwig, Moreira, Silveira, Vieira, Rios-Quituizaca, Masabanda, Serucaca, Rudasingwa, Nyandwi, Mulu, Rashad & Barros 2024:1).

2.3.1 Importance of modern contraceptive methods

Thirty years after the landmark International Conference on Population and Development, family planning, particularly modern contraceptive methods (MCM), remains central to achieving the Sustainable Development Goals (SDGs). Global governments reaffirm the critical importance of ensuring access to a full range of safe, reliable contraceptive methods, which enables couples and individuals to exercise their right to decide freely and responsibly the number, spacing, and timing of their children. Rising MCM use in recent years has demonstrated that these methods not only improve health outcomes (reduced unintended pregnancies, high-risk pregnancies, maternal mortality, and infant mortality), but also enhance educational and economic outcomes, particularly for girls and women. These benefits extend beyond the individual level: by lowering fertility rates and youth dependency while increasing women's participation in paid labour, MCM contributes positively to macroeconomic performance (United Nations, Department of Economic and Social Affairs, Population Division 2020:3).

A growing body of evidence underscores the urgency of prioritising and investing in modern contraceptive methods for safeguarding health, advancing rights and shaping a better future (De Silva et al 2024:3). In alignment with this vision, Ethiopia's FP2030 commitment seeks to expand access, strengthen utilisation and improve quality of family planning services, with the specific goal of reducing the unmet need for contraception from 22% to 17% by 2030 (Federal Ministry of Health 2021a:4).

According to a study report in 2022 by the Ethiopian Public Health Institute, increased investment in health sector infrastructure and the promotion of modern contraceptive methods has led to a notable rise in contraceptive usage among reproductive-age women in Ethiopia (Ethiopian Ministry of Health & Ethiopian Public Health Institute [EPHI] 2022:2; Ethiopian Public Health Institute (EPHI) [Ethiopia] and ICF 2019:7). The adoption of strategies and policies by the Ethiopian government contributed to nearly a fivefold increase in modern contraceptive use from 8% in 2000 to 41% in 2019 (Kibret & Gebremedhin 2022:2). The Ethiopian Public Health Institute highlights that the integration of MCM into community health services has led to increased contraceptive adoption among women of reproductive age in Ethiopia (Institute, Health & ICF 2023:1). Researchers found the Ethiopian Health Extension Program among the initiatives that remarkably contributed to the expansion and access to family planning services and

corresponding reduction in the unmet needs for modern contraception in rural communities (Tadesse, Medhin, Kassie, Dadi, Tigabu, Demissie, Alemayehu, Gerbaba, Denberu & Teklu 2022:6).

Despite these achievements and the ongoing government commitment, challenges persist, inhibiting its progress towards the 2030 Agenda for sustainable development (Institute, Health & ICF 2023:1). Equity gaps related to socio-demographic and geographical disparities remain, and the quality of family planning service delivery needs improvement. To sustain and build upon the hard-fought gains, it is important to increase financial resources, strengthen public-private partnerships, and enhance service delivery, especially in hard-to-reach populations and humanitarian settings (Institute, Health & ICF 2023:1; Kibret & Gebremedhin 2022:2; Ministry of Health 2020b:2).

2.4 PREVALENCE OF MODERN CONTRACEPTIVE METHOD USE

The global use of modern contraceptive methods differs across various areas, and is shaped by differences in health care systems, socio-demographic and economic factors, and the availability and accessibility of reproductive health information and services. Recognising these variations is critical for monitoring progress towards reducing unintended pregnancies, improving maternal health outcomes and achieving universal access to modern contraception (Coulson et al 2023:1; United Nations, Department of Economic and Social Affairs, Population Division 2024b:7).

2.4.1 Prevalence of modern contraceptive methods use worldwide

Globally, contraceptive use has increased significantly in recent decades, accompanied by a marked shift toward modern contraceptive methods (MCM) (Tirumalasetti et al 2022:6; United Nations, Department of Economic and Social Affairs, Population Division 2024b:7).

Dasgupta, Wheldon, Kantorová and Ueffing (2022:97) report that the global prevalence of MCM use among married women was 57.1% in 2019, a modest increase from 55% in 2000. However, Haakenstad et al (2022:299) highlight significant regional variation: the highest average prevalence of modern contraceptive use was reported in Southeast Asia,

East Asia, and Oceania, while sub-Saharan Africa had the lowest prevalence in 2019 (Haakenstad et al 2022:297).

In 2019, Eastern Asia reported the highest MCM prevalence among married women (80.8%), followed by Western Europe, South America, and Northern Europe, all with median estimates above 70% (Dasgupta et al 2022:97). In contrast, Middle Africa (13.7%) and Western Africa (20%) had the lowest prevalence during the same period (Kantorova et al 2020:8).

Sub-Saharan Africa has experienced an increasing trend in MCM use among all women of reproductive age, rising from 13% in 1990 to 29% in 2019 (United Nations, Department of Economic and Social Affairs, Population Division 2022b:13). However, Tesema, Tesema, Boke and Akalu (2022:1) estimate a lower average prevalence of 18.4% among married women in sub-Saharan Africa in 2022. Significant variation exists within sub-Saharan Africa: Southern Africa (57%), Eastern Africa (37%), Western Africa (16%), and Central Africa (14%) (Ekholuenetale, Owobi & Shishi 2022:858). Country-level prevalence in 2022 ranged from Lesotho (highest, 59.8%) to Chad (lowest, 5.04%) among married women (Tesema et al 2022:1).

Within-country variation is also substantial. A population-based study across 20 African countries found similar disparities, with Guinea having the lowest prevalence (6%) and Zimbabwe the highest (62%) (Apanga, Kumbeni, Ayamga, Ulanja & Akparibo 2020:3). Oh, Cogen, Mullany, McLaughlin, Abiodun, Adamu, Adepoju, Adesina et al (2024:6) report subnational MCM use, ranging from 13.2% in Oudalan to 38.9% in Oiogo in Burkina Faso; from 0.4% in Banissa to 76.3% in Makueni in Kenya; and from 0.95% in Yunusari to 31.8% in Somolu in Nigeria.

Together, these studies show a global upward trend in MCM use but also reveal wide regional and subnational disparities. The reported prevalence in sub-Saharan Africa varies substantially. For example, Dasgupta et al (2022:97) report 55% (2000), United Nations, Department of Economic and Social Affairs, Population Division (2022b:13) estimates 29% (2019, all women), and Tesema et al (2022:1) find 18.4% (2022, married women), reflecting differences in target populations, survey years and methods, and highlighting the limitations of aggregated, cross-sectional data in capturing local realities.

This underscores the need for context-specific analyses that move beyond regional averages to understand patterns of use in particular ecological and socio-cultural settings.

2.4.2 Use of modern contraceptive methods in Ethiopia

A rise in modern contraceptive method (MCM) utilisation among married women has been generally reported in Ethiopia, increasing from 7.2% in 2000 to 39.5% in 2016 (Nimani et al 2023:6) and to 41% in 2019 (Ethiopian Public Health Institute (EPHI) [Ethiopia] and ICF 2019:9). However, a recent national survey by the Ethiopian Statistical Service (ESS) and ICF (2025:16) reports a slight decline to 35% in 2025. This increased prevalence is documented across all regions, including the four emerging regions (Afar, Somali, Benishangul Gumz, and Gambella). Kebede et al (2023:3) found that MCM use in these emerging regions increased from 6.26% in 2000 to 21.97% in 2019.

Despite overall progress, remarkable subnational disparities persist, with some regions disproportionately lagging behind others (Fenta, Tesfay Muchie, Zewdu Kassie & Asfaw 2024:4). MCM magnitude varies by contextual region: regions with better healthcare infrastructure and relatively developed urban and agrarian economies have higher MCM use among women (Gobena & Kassie 2024:12). Hotspot analysis identifies regional states including Somalia, Harari, parts of Oromia, Afar, and Dire Dawa city administration as high-risk areas with low modern contraceptive prevalence (Nimani et al 2023:9). Geographic variation is stark: the Ethiopian Somali region consistently exhibits less than 5% MCM use, whereas urban areas like Addis Ababa report up to 52.3% among married women (Kebede et al 2023:7).

Short-acting modern contraceptives dominate Ethiopia's method mix. Shagaro, Gebabo and Mulugeta (2022:7) report prevalence of injectables (22.8%), implants (9.65%), and pills (2.71%), while Zeleke and Zemedu (2023:3) emphasise minimal long-acting method use, such as IUDs (1%). Both studies agree that Ethiopia's method mix is skewed toward short-acting methods, indicating a need for strategies promoting awareness and uptake of long-acting contraceptives to achieve a more balanced and sustainable method mix.

Overall, Ethiopia has experienced substantial growth in modern contraceptive use over the past two decades, but recent fluctuations, persistent regional inequalities and a heavily skewed method mix raise concerns about the depth and stability of these gains.

National surveys provide useful trend data, yet they mask important eco-regional and community-level differences, particularly in rural and pastoralist areas such as the Bale Eco-region. This gap underscores the need for more granular, context-specific analyses of prevalence and method mix to inform tailored strategies in such settings.

2.5 UNMET NEEDS FOR MODERN CONTRACEPTIVES

Although SDG 3.7.1 global development agendas have set ambitious goals to ensure that all women of reproductive age can access family planning information, education, and comprehensive sexual and reproductive health services by 2030, the commitments have not yet translated into widespread access, leaving many women in low- and middle-income countries with unmet family planning needs (Pillai & Nagoshi 2023:144). Despite multiple international efforts, universal availability of effective modern contraceptive methods for women who wish to delay or limit childbirth remains unachieved (World Health Statistics 2023:1). Further, in Ethiopia Wondie (2021:6) explained that unmet demand for contraception and high rates of unintended pregnancy continue to pose serious public health challenges.

Globally, there are an estimated 162.9 million women who have an unmet need for contraception, of whom 29.3% reside in sub-Saharan Africa and 27.2% reside in South Asia (Haakenstad et al 2022:295). The mismatch between these women's fertility preference and non-use of effective and safe MCM threatens their health status and undermines their potential to build a better future for themselves, their families and the community in general (UNFPA 2020:1). Family planning programmes and policies should take into account the unmet need for modern contraceptives, which is also a key intervention to the achievement of multiple Sustainable Development Goals (Pillai & Nagoshi 2023:144). The literature review section below outlines the measurement and prevalence of unmet needs for modern contraceptive methods.

2.5.1 Measuring unmet needs for modern contraceptive methods

The definition of unmet need for contraception has evolved across decades of demographic research, with refinements introduced by Demographic and Health Surveys (DHS), United Nations agencies, and global family planning initiatives. For this study, the researcher adopted the standard fifteen-question DHS-based approach because it is the

most widely validated operational tool for measuring unmet need in diverse contexts. This approach ensures comparability with national and international datasets, aligns with donor and policy frameworks, and captures the multidimensional nature of fertility preferences, contraceptive use, and pregnancy risk (Calhoun, Mirzoyants, Thuku, Benova, Delvaux, Akker, Mcguire, Onyango & Speizer 2022:3).

The 15-question module was chosen over shorter or simplified alternatives because it systematically distinguishes between women who are:

- Fecund and at risk of pregnancy versus those who are infecund.
- Pregnant or postpartum amenorrhea, with classification based on whether the last pregnancy or birth was wanted, mistimed, or unwanted.
- Users of modern versus traditional methods, recognising that traditional methods provide unreliable protection against unintended pregnancy.

This operational choice was particularly appropriate in the context of the current study, where fertility intentions, postpartum behaviours, and the reliance on traditional methods remain heterogeneous. Using the complete set of questions minimised misclassification and allowed nuanced categorisation of reproductive status of women. Classification decisions for borderline cases were made as follows:

Postpartum amenorrhea: Women in postpartum amenorrhea were classified according to the intention status of their most recent birth. If the last birth was mistimed or unwanted, they were considered to have an unmet need. This reflects the DHS convention and ensures that women temporarily protected by lactational amenorrhea are not excluded when their fertility preferences indicate a desire to avoid or delay further pregnancies (Bradley et al 2012:6; Sedgh, Singh & Hussain 2014:302).

Traditional method users: Women relying on traditional or folkloric methods (e.g., withdrawal, herbs, douches) were classified as having an unmet need for modern contraceptive methods (Speizer, Bremner & Farid 2022:2). Although these women perceive themselves as protected, the limited effectiveness of such methods exposes them to elevated risk of unintended pregnancy. Recognising this, recent family planning programmes and global monitoring frameworks treat users of a traditional method as a

priority group within unmet need for modern methods (Sinai, Omoluabi, Jimoh & Jurczynska 2019:2; Sully et al 2020:12).

Borderline fecundity cases: Women self-reporting in fecundity were excluded only if consistent with DHS criteria (e.g., menopause, hysterectomy, or long-term infertility). Those with uncertain fecundity but no clear medical exclusion were retained as fecund to avoid underestimation of unmet need.

By explicitly applying these classification rules, the study ensured that prevalence estimates were both methodologically rigorous and policy relevant. The chosen measurement approach reflects international consensus, enhances comparability with national FP2030 monitoring, and provides a robust basis for identifying women at highest risk of unintended pregnancy and for guiding programme priorities (Kumar 2020:323).

Unmet need for contraception can be further categorised into unmet needs for limiting (i.e., when the woman does not want to have any more children but is not using a contraceptive method) and unmet needs for spacing (i.e., when the woman would have wanted to delay her next childbirth for two years or more but is not using a contraceptive method) (Calhoun et al 2022:3).

2.5.2 Prevalence of unmet needs for modern contraceptive methods

Global estimate reported that 18.2% of married women worldwide had unmet needs for MCM in 2019, declined from 22.7% of the 1990 (Kantorova et al 2020:8). Secondary analysis of Demographic and Health Surveys from 19 sub-Saharan African countries indicated an average prevalence of 23.70% (95% CI:23.50, 23.90) unmet need for modern contraception, with 15.8% attributed to spacing and 7.9% to limiting (Teshale 2022:10). A systematic review identified the highest prevalence of unmet need in South Sudan (35.1%), Central African Republic (29.2%), and Vanuatu (28.4%) in 2019 (Haakenstad et al 2022:308). Analysis of the 2019 Performance Monitoring for Action survey in Ethiopia reported 19.7% (95% CI:18, 21.5) unmet need for modern contraceptive methods (Gebrekidan et al 2024a:5). Analysis of trends in unmet need for contraceptives in Ethiopia showed a decline from 37.3% in 2000 to 22.3% in 2016 (Alemu et al 2024:4). The same study reported that, in 2016, 13.3% of married women had unmet needs for spacing and 9% had unmet needs for limiting. Overall, these findings suggest

that while unmet need has declined over time, it remains substantial globally, in sub-Saharan Africa, and in Ethiopia, indicating persistent gaps between women's reproductive intentions and their ability to obtain and continue using suitable modern methods.

Subsequent examination of unmet contraceptive needs revealed notable variation across nations by level of socio-economic development. The average percentage of unmet contraceptive needs was found to be higher in nations with the lowest socio-demographic index (19.2%) than in those with the highest socio-demographic category (4.6%) (Haakenstad et al 2022:300). This pattern shows that unmet need is not only a service-delivery issue but also a broader development and equity concern, with women in poorer settings facing greater constraints in accessing effective contraception. It highlights that even with the declining trend, the (22.3%) magnitude of unmet needs for contraceptives among married women in Ethiopia is higher than the average prevalence for those low socio-economic countries (Alemu et al 2024:7). This suggests that Ethiopia's unmet need remains comparatively high and may reflect persistent barriers related to access, method choice, counselling quality, partner influence, and socio-cultural norms.

Researchers also identified inequalities in the magnitude of unmet need for contraception among sub-groups and across socio-economic contexts of communities in Ethiopia (Tadesse et al 2022:6). For example, women residing in rural and high fertility regions have a higher prevalence (29.78%) of unmet need for modern contraception in Ethiopia. The Oromia, Afar and Somali regions had (30.1%), (18.15%), and (12.76%) unmet needs for contraception, respectively (Asmamaw & Negash 2022:5). These differences point to clear subnational disparities and show that national averages conceal substantial regional and rural-urban inequalities. These pieces of evidence highlight the importance of targeting specific regions and population subgroups within the country to address the issues of unmet needs for contraception. In particular, the need for tailored strategies for settings such as the Bale Eco-region, where local barriers and service conditions may differ markedly from the national picture.

2.6 MULTI-LEVEL BARRIERS TO MODERN CONTRACEPTIVE USE: A SOCIO-ECOLOGICAL MODEL APPROACH

The barriers to modern contraceptive use operate across multiple levels of the socio-ecological environment and are shaped by interacting physical, educational, social, personal, and policy-related constraints. For example, physical, educational, social, personal or legal situations prevent millions of people globally from accessing quality family planning services every year (Habib 2022:4). Individuals' ability to adopt and sustain the desired behaviour (e.g., modern contraceptive method use) is limited by varying degrees of factors such as knowledge, information, social and community support, economic means, access to services and the broader policy environment that are interrelated and exist at multiple levels of the socio-ecological model (FMoH 2021:12). In this section of the literature review, the barriers to the use of MCM by married women are synthesised at the five levels of the socio-ecological model, including individual, interpersonal, community, institutional and societal levels. However, while existing studies have documented barriers to MCM use separately, fewer have examined how they interact within a specific eco-regional context or how to translate them into context-specific strategies.

2.6.1 Individual-level barriers to modern contraceptive method use

Individual-level barriers correspond to personal characteristics, beliefs, and experiences that influence women's ability to use modern contraceptive methods. Various researchers reported the individual-level obstacles that discourage married women from using effective contraceptive methods, including lack of knowledge, misconceptions, fear of side effects, religious and cultural beliefs, and low self-efficacy and decision-making power (Abdi, Okal, Serour & Temmerman 2020:9; Boadu 2022:1; D'Souza, Phagdol, D'Souza, Anupama, Nayak, Velayudhan, Bailey, Stephenson & Oliver 2023:83; Ezenwaka et al 2020:4). Across these studies, the consistent pattern is that women's non-use is often shaped by limited knowledge, negative expectations, and constrained agency rather than simple lack of interest.

Lack of knowledge and misconception are among the frequently reported barriers hindering the use of modern contraceptives and other sexual and reproductive health services (Olajubu, Olowokere & Naanyu 2025:4). For example, a study in Zambia found

that a lack of understanding of contraceptive methods and their benefits is a key individual barrier to contraceptive use by women (Mukanga, Nkonde & Daka 2023:6). Similarly, Boadu (2022:6) also emphasised that women's lack of appropriate knowledge about contraceptive methods leads to misconception and fear of side effects that result in less likely use of contraceptive methods. D'Souza et al (2023:83) also reports on the misconceptions about the safety and effectiveness of modern contraceptive methods further exacerbate the problem of not using effective contraceptive methods that fulfil their need to space or limit pregnancies. This suggests that accurate, method-specific information is a prerequisite for informed choice and sustained use.

Fear of potential side effects is a common barrier to contraceptive use, which is often fuelled by misinformation or personal experience shared within social networks (Ezenwaka et al 2020:4). Unfounded health concerns and fear of side effects are also found to be common reasons for the non-use of modern contraceptives despite the desire to postpone pregnancy by women in 35 low- and middle-income countries (Moreira, Ewerling, Barros & Silveira 2019:148). This indicates that reluctance to use modern methods is frequently driven by anticipated harm rather than opposition to family planning itself.

Negative perceptions related to family planning are linked to myths and religious misconceptions. For example, a community-based study in Zambia found most participants expressed fear of using certain contraceptive methods due to beliefs and perceived fear of infertility (Mukanga et al 2023:6). Another study in Kenya found religious misconceptions where Islamic teaching about family planning discourages contraceptive use by women (Abdi et al 2020:8). In most instances, religious misconceptions related to family planning are due to considering sexual and reproductive health issues sensitive and rarely discussed subjects in Muslim societies (Mulugeta et al 2023:8). Low self-efficacy and decision-making power of women also play a crucial role in the non-use of modern contraceptive methods. Studies have highlighted that women with low levels of participation in the household decision-making process are less empowered and lack the agency to decide and use modern contraceptive methods (Ezenwaka et al 2020:4). Together, this evidence shows that individual-level barriers are closely tied to knowledge, fear, and autonomy.

2.6.2 Interpersonal-level barriers to modern contraceptive method use

Numerous interpersonal-level barriers influence the use of modern contraceptive methods. Spouses, families, and friends are key actors at the interpersonal level (FMoH 2021:12). Partners' attitudes, lack of spousal communication and joint decision-making, lack of support, family and peer influence, stigma and judgement, and religious and cultural influences are the commonly reported barriers at the interpersonal level in different regions (Abdi et al 2020:5; Asif, Pervaiz, Afridi, Abid & Lassi 2021:4; Akamike, Madubueze, Okedo-Alex, Anyigor, Azuogu, Umeokonkwo & Mbachu 2020:5; D'Souza, Bailey, Stephenson & Oliver 2022:364; Ezenwaka et al 2020:1; Namasivayam, Schluter, Namutamba & Lovell 2022:1; Sedlander, Yilma, Emaway & Rimal 2022:6). The literature consistently shows that contraceptive decisions are negotiated within relationships, making partner and family dynamics fundamental to use or non-use.

The attitude and level of support from the women's spouse are among the key barriers to modern contraceptive use. Studies have shown that opposition to contraceptive use from partners significantly reduces the likelihood of using contraceptive methods by women (Asif et al 2021:5; Mukanga et al 2023:11; Namasivayam et al 2022:1). For instance, in Pakistan, women having a partner who opposes the use of contraceptive methods or perceives religious prohibition against family planning are less likely to use contraceptive methods despite their wish to prevent pregnancy (Asif et al 2021:4). Similarly in Ethiopia, women having a husband who believes contraceptives cause infertility, fear abandonment by their husband and are less likely to use contraceptive methods (Sedlander et al 2022:5). In Uganda, opposition from partners is attributed to women's negative experiences with contraceptive side effects (e.g., loss of libido and excessive menstrual bleeding) that interfere with their partners' enjoyment of sexual intercourse (Namasivayam et al 2022:6). This shows that partner opposition may reflect both misinformation and gendered control over reproductive decisions.

Inadequate communication between spouses about family planning is another interpersonal-level barrier hindering contraceptive use. Effective communication between partners is essential for contraceptive method use, however, many women face challenges in openly discussing with their partners (Hakizimana & Odjidja 2021:7; Namasivayam et al 2022:6; Sedlander et al 2022:5). For example, poor communication between spouses has been identified as a key barrier to contraceptive use in Uganda,

where study participants indicated their partners are unwilling to discuss family planning openly and attempts of discussions turned unproductive and a source of conflict they sought to avoid (Namasivayam et al 2022:6). Similarly, another study among conservative communities in rural Burundi found that due to inadequate communication between spouses, couples do not convince each other and the women are less likely to use contraceptive methods without their partner's approval (Hakizimana & Odjidja 2021:7). This is also reported in Ethiopia, indicating that poor communication between couple due to a belief of contraceptive use causes infertility obstacles contraceptive use by women (Sedlander et al 2022:5). In the actual scenarios, silence and conflict avoidance can function as indirect barriers to use.

The decision-making power within a relationship is another interpersonal-level barrier to modern contraceptive use. In many societies, women usually lack the autonomy to independently decide over their reproductive health and decisions related to fertility and contraceptive use are usually made by husbands (Asif et al 2021:7; Mukanga et al 2023:11). For instance, research in Pakistan reported that the decisions related to contraceptive use are made solely by husbands, highlighting the marginalisation of women's decision-making autonomy (Asif et al 2021:6). Similarly, researchers in Kenya found women's inability to make decisions over their fertility preference as a key barrier to their contraceptive use (Abdi et al 2020:7). This dynamism is particularly common among patriarchal communities where gender roles are rigidly defined, and women's reproductive health decisions are influenced by their partners (Abdi et al 2020:6; Asif et al 2021:7; Namasivayam et al 2022:10). These findings highlight that, despite knowing contraceptive methods, women fear the repercussions of attempting to use modern contraceptive methods without their partner's knowledge and consent. This pattern is especially important in settings where social norms grant men dominant authority over fertility decisions.

Inadequate communication, interaction, and lack of trust in health service providers are also interpersonal-level barriers to contraceptive use studied in different settings. Effective communication and counselling by health service providers are essential to provide appropriate information about contraceptive methods and to address misinformation (Corey, Schwandt, Boulware, Herrera, Hudler, Imbabazi, King, Linus, Manzi, Merrit, Mezier, Miller, Morris, Musemakweli, Musekura, Mutuyimana, Ntakarutimana, Patel, Scanteianu, Shemeza, Sterling-Donaldson, Umutoni, Uwera,

Zeiler & Feinberg 2022:9; Danna, Angel, Kuznicki, Lemoine, Lerma & Kalamar 2021:948; Memon, Mian, Reale, Spencer, Bhutta & Soltani 2023:4). Despite its significance in providing the right information and clarification of misinformation, poor client-provider interaction, and unfriendly and judgmental attitudes of healthcare providers remain a barrier to contraceptive use (Ezenwaka et al 2020:6). For example, married women in Uganda expressed concern over a lack of confidentiality and fear of disclosure of their contraceptive use to others with possible consequences in their marital relationships as a reason for non-use or covert use of contraceptive methods (Namasivayam et al 2022:6).

Fear of side effects and health concerns that are exacerbated by misinformation and lack of accurate knowledge about contraceptive methods are among the primary barriers to women's contraceptive use that need to be addressed through effective communication with healthcare providers (Memon et al 2024:4; Sedlander et al 2022:6). For example, in Ethiopia, a widespread belief that contraceptive use results in infertility is a misconception related to lower contraceptive use that needs to be addressed through effective communication by health service providers (Sedlander et al 2022:6). Similarly, addressing fear of potential health risks that tend to be barriers to contraceptive use through appropriate communication by health professionals is recommended by researchers in Uganda (Namasivayam et al 2022:13). This reinforces the importance of respectful counselling and trust-building within service encounters.

2.6.3 Community-level barriers to modern contraceptive method use

Community-level barriers encompass the aggregate socio-economic and environmental contexts surrounding women's immediate community that prevent women from using modern contraceptive methods (Caperon, Saville & Ahern 2022:4). These barriers matter because community environments shape norms, information flow, and social acceptance.

According to a study in sub-Saharan Africa, aggregate community literacy, access to information, and the community's economic status or poverty are the community-level barriers to the use of modern contraceptive methods by women (Ahinkorah, Budu, Aboagye, Agbaglo, Arthur-Holmes, Adu, Archer, Aderoju & Seidu 2021:9; Boadu 2022:1). This indicates that contraceptive use is partly determined by the social and economic influences of the communities where women live.

Research that investigated the barriers to contraceptive use in 11 low- and middle-income countries found cultural practices that support high fertility and discourage the use of modern contraceptive methods (Blumenberg, Hellwig, Ewerling & Barros 2020:7).

In such communities, the use of contraceptive methods is considered a threat to the community's norms, and yet social disapproval and fear of discrimination prevent women from using contraceptives (Akamike et al 2020:5; Silumbwe, Nkole, Munakampe, Cordero, Milford, Zulu & Steyn 2020:8). These pieces of evidence suggest that non-use may reflect conformity to prevailing fertility norms rather than lack of awareness alone.

Misconceptions about modern contraceptive methods are common in many communities in sub-Saharan Africa (Ahinkorah et al 2021:9). The misconception often emanates from a lack of accurate information about the safety and effectiveness of contraceptive methods (Akamike et al 2020:6; Potasse & Yaya 2021:6). For example, misconceptions and unfounded rumours about side effects circulate deep into villages, which make some clients worry that the use of contraceptive methods causes permanent infertility, abnormal babies, cancer and even death (Potasse & Yaya 2021:6). Fear of health concerns and fear of side effects linked to some of the modern contraceptive methods are among the prominent barriers to modern contraceptive use in some communities. For example, according to a study finding in Pakistan, due to the fear of side effects of IUDs and Implants, many women prefer to use withdrawal methods and condoms, which are less effective, despite their wish to delay or space future pregnancies (Hackett, Nausheen, Yameen, Hussain, Khaneez, Shah & Soofi 2021:6). In such a way, community misinformation can shape both method choice and overall uptake.

2.6.4 Institutional-level barriers to modern contraceptive method use

The distance to visit health facilities, lack of transport and cost of health services exacerbate the non-use of MCM, particularly in rural areas (Khan, Akter & Islam 2022:11; Fenta & Gebremichael 2021:8). These barriers are especially important where women must travel long distances or incur direct and indirect costs to access care. For instance, according to Khan et al (2022:8), a study in Bangladesh found that the distance to access a health facility with long-acting and Reversible contraceptive methods discourages especially those women with lower knowledge and educational level, contributing to higher inequalities in contraceptive use. This is also true in sub-Saharan Africa, where

poor service availability and accessibility of services often hinder rural women's ability to obtain modern contraceptives (Fentie, Asmamaw, Shewarega, Negash, Teklu, Alemu, Eshetu, Belay, Aragaw & Fetene 2023:8; Tesema et al 2022:6). For example, a study in Zambia found that the unavailability of FP services and lack of variety of contraceptive methods in most health facilities is a major barrier to contraceptive method use (Mukanga, Nkonde & Daka 2023:11). A study on the perspectives of service providers in an urban setting of Korangi District in Karachi Pakistan, found the unavailability of contraceptive methods, medicines and supplies a problem in accessing preferred contraceptive methods by women (Shah, Ali, Jehan & Gul 2020:299). These studies highlight that institutional barriers are not only about distance but also about service readiness and choice of method.

In South Africa, the inaccessibility of long-acting permanent contraceptive methods such as sterilisation in nearby health facilities leads to a lengthy process of obtaining the method (Kriel, Milford, Cordero, Suleman, Steyn & Smit 2023:14). These indicate that limited availability and accessibility of healthcare facilities in nearby communities and unavailability of preferred contraceptive method type are major challenges in the use of modern contraceptive methods by married women.

Provider partiality represents an additional institutional barrier that undermines both informed choice and access to a full range of contraceptive options. Problems of effective communication between client and provider include inadequate counselling skills and insufficient training of service providers, and an unequal power relationship between providers and clients exacerbates the situations related to provider bias that hinders women from using effective contraceptive methods (Shah et al 2020:299). Insufficient information and counselling by health care workers is limiting women's informed choice and uptake of contraceptive methods (Mukanga et al 2023:11). Thus, institutional quality, provider competence, and client-centred counselling are integral to MCM use.

2.6.5 Societal-level barriers to modern contraceptive method use

This level includes social norms, macroeconomic and political factors, and environments that affect health (Gebrihet, Gebresilassie & Woldu 2024:23). At this level, structural and normative conditions shape what is considered acceptable and possible for women and couples. Deeply ingrained social norms, specific policies and programme-related factors

influence the use of modern contraceptive methods by married women in various communities (Andeskebtso 2023:17). These barriers often involve collective cultural, religious, social norm and gender inequalities that communally restrict women's autonomy, and decision-making power regarding family planning (Beaujoin, Bila, Bicaba, Plouffe, Bicaba & Druetz 2021:9). This shows that contraceptive use is constrained by broader systems of gender and social control.

Cultural beliefs and religious misconceptions interfere with women's use of contraceptive methods. For instance, cultural and religious beliefs in rural Burundi favour large family sizes, considered a sign of wealth (Hakizimana & Odjidja 2021:7). Similarly, misinterpretation of Islamic teaching and preferences for large family size negatively impact contraceptive method uptake in Kenya (Abdi et al 2020:8). These are also reported in Pakistan, where patriarchal norms and religious prohibitions are significant barriers to contraceptive method use (Asif et al 2021:6). Such beliefs can legitimise non-use and reduce women's perceived ability to challenge prevailing norms.

A study in Ethiopia found that social disapproval of contraception and pervasive myths about contraceptive methods are also common barriers to contraceptive method use (Dingeta, Oljira, Worku & Berhane 2021:9). Similarly, in rural Ghana, fear of social disapproval of hormonal contraceptives is a barrier to contraceptive use among young people (Boamah-Kaali, Mevissen, Owusu-Agyei, Enuameh, Asante & Ruiter 2021:182). These indicate that due to fear of social disapproval and discrimination, women prefer not to use contraceptive methods despite the desire to prevent unintended pregnancies. These findings suggest the need for targeted interventions that focus on stigma and community observation to suppress demand even where need exists.

Contraceptive use in sub-Saharan Africa is widely influenced by gender roles, power dynamics, attitudes such as acceptance of wife beating and restrictive norms around sexual and reproductive health (Andeskebtso 2023:16; Mejía-Guevara, Cislaghi, Weber, Hallgren, Meausoone, Cullen & Darmstadt 2020:15; Sidamo, Kerbo, Gidebo & Wado 2023:107). These norms shape household authority and limit women's reproductive agency. The communal gender norms accepted by the wider society restrict women from seeking contraceptive services on their own without their husband's permission (Andeskebtso 2023:17). Pressure from religious leaders and the need for husbands' permission to access health services are some of the societal-level barriers to the use of

contraceptive methods (Akamike et al 2020:6; Beaujoin et al 2021:9). According to Beaujoin et al (2021:5) in rural Burkina Faso, husbands are presumed to be heads of households and are responsible for taking care of its members, therefore, the social and cultural norms pressure women to rely on the authority of their husbands. Social stigma and criticism of contraceptive use are another socio-cultural element that restricts women from using contraceptives. For example, according to a study conducted in Taraba State, Nigeria, many people consider women who use contraceptives to be promiscuous and unfaithful; therefore, women fear the criticism or social consequences (Andeskebtso 2023:17). Generally, the literature indicates that societal-level norms can normalise non-use and reinforce barriers at the other socio-ecological levels.

Despite the breadth of evidence across these five levels, the literature remains fragmented and mostly descriptive, with limited synthesis of how the barriers interact within a single eco-regional setting or how to translate them into practical, multi-level responses. This creates a clear knowledge gap for the Bale Eco-region, where individual beliefs, partner relations, community norms, service constraints, and broader social structures may combine in ways that national or region-wide studies cannot fully capture. The present study therefore addresses this gap by using a mixed-methods, socio-ecological approach to identify not only the multi-level barriers to modern contraceptive use but also the context-specific leverage points for strategy development among married women in the Bale Eco-region. This gap directly shaped the study's research questions, which moved from measuring prevalence and determinants to explaining barriers and enablers, and finally to developing tailored, evidence-based strategies across SEM levels.

2.7 FACTORS ASSOCIATED WITH MODERN CONTRACEPTIVE METHOD USE

Despite the availability of various modern contraceptive methods, the uptake and consistent use of these methods is influenced by numerous factors (Caperon et al 2022:4; Ezenwaka et al 2020:10; Mukanga et al 2023:11). While choosing to take modern contraceptive method is seen as a personal choice, it is typically impacted by a number of external factors (Kapadia-Kundu et al 2022:9; Kebede et al 2023:6). Research reports in various contexts indicate, individual behaviours, including the use of contraceptive methods, are shaped by interactions within both the physical and social environments in which people live. For married women, influences on contraceptive use usually occur at

multiple levels across the socio-ecological environment, including the factors at intrapersonal, interpersonal, community, institutional, and societal levels (Ajayi et al 2021:216; Mankelkl & Kinfe 2023:12). This literature review investigated the factors associated with the use of MCM among married women at the five levels of the socio-ecological framework. In general, the literature suggests that modern contraceptive use is shaped by a combination of individual characteristics, relationship dynamics, community context, service environment, and broader social norms rather than by any single determinant alone.

2.7.1 Intrapersonal level factors associated with modern contraceptive use

Researchers in different countries reported various socio-demographic variables, socio-economic status, reproductive characteristics, personal knowledge, beliefs, and attitudes as the intrapersonal level factors associated with married women's use of MCM (Ademuyiwa & Adetunji 2022:23; Debelew & Habte 2021:5; Gobena & Kassie 2024:7; Mankelkl & Kinfe 2023:10; Nimani et al 2023:11; Shagaro et al 2022:9; Zegeye, Tamir, Asmamaw, Bitew, Fentie, Terefe, Anteneh, Baffa, Tiruneh, Demissie, Belachew, Negash & Jejaw 2025:9; Zeleke & Zemedu 2023:4). Socio-demographic and economic characteristics of a woman, including age, religion, educational status, employment, and income level, are often reported in the literature among the intrapersonal level factors influencing women's use of MCM (Ademuyiwa & Adetunji 2022:23; Ekholuenetale et al 2022:860; Tampah-Naah, Yendaw & Sumankuuro 2023:8). The reviewed studies highlight that women's use of modern contraception is consistently associated with demographic characteristics, residential location, and economic status.

A significant association between a woman's age and her contraceptive use was reported in the literature in different regions (Osborne, Bangura & Ahinkorah 2024:9; Rana, Khanam, Alam, Hassen, Kabir & Khan 2024:21; Zegeye, Ahinkorah, Idriss-Wheeler, Olorunsaiye, Adjei & Yaya 2021:3; Zeleke & Zemedu 2023:6). A decline in the odds of modern contraceptive method use is often reported as the age of a woman increases (Gobena & Kassie 2024:9; Rana, Khanam, Alam, Hassen, Kabir & Khan 2024:21; Zegeye et al 2021:3). For example, according to a study in Bangladesh, Rana et al (2024:21) find women in the age category 40-45 and those between 45-49 years respectively have 47% and 76% lower odds of contraceptive use compared to those women aged 35-39. Similarly, a study by Zegeye et al (2021:3) in Senegal found that women aged 40-44

years and 45-49 years have a 34% and 56% lower odds of modern contraceptive use compared to the youngest age categories. Researchers in Ethiopia reported the inverse relationship between the age of women and the likelihood of modern contraceptive use. For instance, the reanalysis of the 2019 Ethiopian Mini Demographic and Health Survey found a 5% decline in the odds of MCM use for each additional year of age among married women (Gobena & Kassie 2024:8). The negative association between age of the women and the use of modern contraceptive use is also echoed by various subnational level research in Ethiopia (Debelew & Habte 2021:5; Zeleke & Zemedu 2023:6). These pieces of evidence on the strong association between women's age and MCM use implies that parity, fertility intentions, and life-course stage should be considered when interpreting contraceptive behaviour.

Although most of the reviewed articles as presented above supported the inverse relation between age and contraceptive use, some researchers reported opposing findings (Jejeebhoy & Sathar 2024:601; Nimani et al 2023:12). For example, an analysis of contraceptive use in 20 African countries found women aged 25-34 are more likely to use modern contraceptives compared to younger women (Jejeebhoy & Sathar 2024:601). As a study in Ethiopia (Nimani et al 2023:11) also reported that older women aged 45-49, 40-44, and 35-39 years are 4.5, 2.1, and 1.4 times more likely to use modern contraceptive, respectively, compared to those women aged 15-19 years. These findings highlight, the need for targeted interventions that need to address the reproductive health needs of women tailored to their age. The educational status of a woman is the other predictor of modern contraceptive use at the intrapersonal level. Most studies reported a positive association between women's education and the use of MCM (Gebrekidan et al 2024b:4; Tesema et al 2022:7; Zegeye et al 2021:3). The divergence of the evidence across studies suggests that age effects could vary by context, parity, or measurement timing.

A study in Senegal found that those women who attended higher education, high school, and primary school are 1.88, 1.37, and 1.21 times more likely to use MCM respectively compared to those women with no formal education (Zegeye et al 2021:8). Education appears to operate both as a source of information and as a pathway to greater agency in reproductive decision-making.

The inequality in modern contraceptive use based on the women's education could be due to the effect of education in enhancing women's autonomy and decision-making ability (Mankelkl & Kinfe 2023:11; Zeleke & Zemedu 2023:5). The influence of religious affiliation on married women's use of modern contraceptive use is often mentioned in the literature by different researchers (Endriyas, Eshete, Mekonnen, Misganaw, Shiferaw & Ayele 2017:10; Mankelkl & Kinfe 2023:7). For instance, study results from Uganda and Kenya reported married women who follow the Muslim religion have lower odds of using modern contraception compared to their counterparts who follow the Catholic religion (Mankelkl, Kassaw & Kinfe 2024:4; Wasswa, Kabagenyi & Ariho 2021:7).

A secondary analysis of the 2022 Kenyan Demographic and Health Survey, reported married women from the Muslim religion having a 43.4% less likely chance to use modern contraceptive methods compared to their Catholic religion counterparts (Mankelkl et al 2024:4). This finding is also echoed by researchers in Ethiopia (Gobena & Kassie 2024:9). For instance, a secondary analysis of the Ethiopian Mini Demographic and Health Survey found that women who follow Muslim religion have a 75% (AOR=0.25; 95% CI:0.22, 0.29) lower odds of using modern contraceptive methods compared to those women who follow Orthodox Christianity (Mankelkl & Kinfe 2023:7). Additionally, studies among young married women in Ethiopia consistently reported religious affiliation as an intrapersonal level determinant of modern contraceptive method use (Debelew & Habte 2021:5; Yesuf 2024:5).

Debelew and Habte (2021:5) also found that young women who follow Muslim religion in Ethiopia are 50% less likely to use MCM compared to their counterparts of Orthodox Christian religion followers. Another study in Ethiopia, reported young married women who follow the Protestant religion have a 71% less likely chance of using modern contraceptive methods compared to their Orthodox Christian counterparts (Yesuf 2024:5). The influence of religious affiliation on women's contraceptive use could be due to its potential effect in perpetuating barriers to contraceptive use such as myths, misconceptions, and patriarchal norms (Idris, Soffian, Baharom, Baharuddin, Hashim & Nawi 2022:690).

Therefore, a review of the literature in this study highlights the importance of considering religious factors in designing and implementing strategies for improved modern contraceptive use. The socio-economic status of the women, including employment

status, work status and income, is often identified as another individual-level factor associated with the use of modern contraceptive methods by married women in different regions (Dadzie, Essuman, Budu, Ameyaw, Aboagye & Ahinkorah 2024:9; Makumbi, Nabukeera, Tumwesigye, Namanda, Atuyambe, Mukose, Ssali, Ssenyonga, Tweheyo, Gidudu, Sekimpi, Hashim, Nicholson & Ddungu 2023:13; Tesema et al 2022:10). In this matter, religion and socio-economic position should be understood as both markers of identity and potential constraints on contraceptive choice.

The positive association between women's economic status and modern contraceptive use was also reported in various African communities. A strong association between socio-economic status and contraceptive usage was often reported in sub-Saharan Africa, with women having better wealth status more likely to use modern contraceptive methods (Ekholuenetale et al 2022:858). In Uganda, significant socio-economic-related inequalities in the use of modern contraceptive methods were revealed in favour of those women having a better wealth status, indicating 45% of women in the highest wealth quantile versus 24.5% of those in the lowest quantile use MCMs (Makumbi et al 2023:7). Indicating that economic status matters, but its effect may be modified by place and service context.

There are also various research findings in Ethiopia reported a positive association between women's higher wealth status favouring better modern contraceptive method use (Mankelkl & Kinfe 2023:7; Nimani et al 2023:11; Zeleke & Zemedu 2023:6). For instance a secondary data analysis of the Ethiopian 2019 Mini Demographic and Health Survey uncovered that the poorest women in Ethiopia are 46% less likely to use modern contraceptive methods compared to the richest women (Mankelkl & Kinfe 2023:7). Although the positive association between wealth status and contraceptive use is reported in most literature globally, there is also evidence opposing arguments elsewhere on the other hand (Pokhrel, Aryal, Adhikari, Dulal, Karki, Dahal, Dangol, Poudel, Bhattarai & Lamichhane 2021:708).

In Ghana, poorer women in rural settings showed higher odds of using MCM compared to their urban counterparts, indicating context and location take precedence over wealth (Tampah-Naah et al 2023:5). Personal beliefs, knowledge and attitude are among the frequently reported intrapersonal-level factors associated with modern contraceptive use by women. A study in Tanzania found that women who believe that contraceptives benefit

the family, believe that contraceptives are effective, and believe that contraceptives are safe, respectively have 3.65, 2.48, and 3.59 times higher odds of using contraceptive methods compared to their counterparts (Kraft, Serbanescu, Schmitz, Mwanshemele, Ruiz, Maro & Chaote 2022:447). Similarly, a study in Nigeria found that opposition and individual women's personal beliefs are the main reasons for non-use of contraceptive methods across six geopolitical zones (Ademuyiwa & Adetunji 2022:23). The effect of personal beliefs on women's contraceptive use is also reported in Ethiopia. For example, a community-based survey in Eastern Ethiopia found that women having a higher score of belief in contraceptive myths have a 40% (AOR=0.60; 95% CI:0.49-0.73) lower odds of modern contraceptive use (Dingeta et al 2021:7). These empirical findings suggest that attitudes and beliefs can either enable use or reinforce avoidance of modern methods.

2.7.2 Interpersonal level factors associated with modern contraceptive use

Interpersonal level factors refer to those factors resulting from the relationship and interactions of the individual with others in her/his formal and informal social network and social support systems (Ajayi et al 2021:217). These include relationships and interaction with key influencers, including partners, friends, families and healthcare workers (Ajayi et al 2021:217; Manet et al 2023:9). Women in Kenya identified parents, specifically mothers, aunts, partners, friends and healthcare workers as key influencers regarding decisions related to contraceptive method use (Zinke-Allmang, Bhatia, Gorur, Hassan, Shipow, Ogolla, Keizer & Cislaghi 2023:1). Various factors that influence the use of modern contraceptive methods have been identified and reported at the interpersonal level by researchers who used the Socio-Ecological Model (Ajayi et al 2021:217; Mukanga et al 2023:11; Sidamo et al 2023:105). At this level, contraceptive use is shaped by interpersonal dynamics that can either encourage discussion and support or reinforce silence and resistance.

A systematic review of published articles from lower- and middle-income countries found that spousal dynamics, peer influence, and gender norms are among the key interpersonal level factors influencing modern contraceptive use among women (Feriani, Yunitasari, Efendi, Krisnana, Ernawati, Tianingrum & Safaah 2024:599). Arrazy, Purnama, Susanti, Ashar, Sitorus and Fajarningtiya (2022:193) report that in Indonesia's Coastal Slum areas, the support from partners, family and friends improves women's understanding and attitudes towards contraception, thereby increasing their chance of

using MCM. A study by Zinke-Allmang et al (2023:4) reports that in Kenya women's confidence and decision-making regarding contraceptive use are influenced by the emotional support they receive from partners, friends and family members. These findings highlight that women's attitudes and behaviour towards contraceptive method use are shaped by their interaction and support from their partners, family and friends. Supportive relationships therefore appear to strengthen both knowledge and self-efficacy.

Male partners' influence is the most commonly reported interpersonal-level factor associated with the use of MCM by married women (Feriani et al 2024:599; Takyi, Sato, Adjabeng & Smith 2023:6). According to Mukanga et al (2023:11) male partners' influence on their spouse's contraceptive use is characterised by their preference for large family size, a tendency to intimate partner violence and disapproval of contraception use. The same study further emphasised that the underlying reasons behind the negative influences of male partners are linked to their perceived fear of side effects, fear of partner infidelity, and disruption of sexual pleasure. This implies that male influence can operate through both control and concern, depending on relationship dynamics.

Communication between husband and wife is a key interpersonal level predictor of MCM use by married women, which is often mentioned in the literature in different regions of the world (Abedin & Hossain 2025:20; Feriani et al 2024:599; Mukanga et al 2023:11). Researchers in Ethiopia reported that husband-wife communication within a marriage significant influencer of a married woman's use of MCM (Tsehay 2022:5; Mulatu, Sintayehu, Dessie & Deressa 2020:7). For example, in a study from rural Eastern Ethiopia, married women who discuss family planning with their husbands and those who reported joint decision about planning family size are 2.8 and 2.3 times more likely to use MCM, respectively, compared to their counterparts (Mulatu et al 2020:7). This emphasises the importance of open communication between husband and wife as a key pathway to contraceptive uptake.

Various researchers suggest the importance of involving male partners and addressing gender norms. For instance, a secondary analysis of the Demographic and Health Survey data of 36 countries in SSA found that women whose husbands attended primary and secondary or post-secondary level education respectively have a 1.38 (AOR=1.38, 95% CI:1.33, 1.42) and 1.38 (AOR=1.38, 95% CI:1.36, 1.47) odds of using a contraceptive method compared to those having a husband not attended school (Tesema et al 2022:4).

Similarly, a study in Senegal found that women whose partner attended a primary and a higher level education respectively are 1.32 and 1.43 times more likely to use modern contraceptive method compared to those women whose partner had no formal education (Zegeye et al 2021:8).

A study in SSA found that compared to those married women who decide their health care utilisation by themselves, those women who either decide jointly with a partner and those whose partner decides for them respectively have 10% and 27% lower odds of using a contraceptive method (Tesema et al 2022:4). Interpersonal communication between husband and wife is not the only factor that influences contraception use. The relationship between friends, relatives and neighbours also plays a significant role in married women's contraceptive method use. Perceptions of the peer group's attitude and approval are also commonly mentioned interpersonal-level factors that influence MCM use. For example, in Nigeria, women who perceived support from someone in the community on family planning are twice as likely to use MCM compared to those without such support (Alo, Daini, Omisile, Ubah, Adelusi & Idoko-Asuelimhen 2020:6). For example, suppose the peer group promote the use of reproductive health services and supports each other. In that case, a woman is more likely to be initiated into utilising family planning services.

On the other hand, if a group strongly opposes the use of family planning, a woman who wishes to use a family planning method may refrain from doing so out of fear of rejection or disapproval from her peer group (Calhoun et al 2022:9; Wondimagegene, Debelew & Koricha 2023:6). According to Zinke-Allmang et al (2023:7) reports in Kenya the social norms and values upheld by friends and family members influence married women's decisions related to contraceptive use. For example, "women in Peri-Urban Nairobi, often consult key influencers such as mothers, aunts, and partners who shape their perception of family planning through trust and the anticipation of sanctions for non-compliance with norms." Comfort, Harper, Tsai, Perkins, Moody, Rasolofomana, Alperin, Schultz, Ranjalahy, Heriniaina and Krezanoski (2021:6) also report that it is not only women's social networks that influence their contraceptive use; men's networks also significantly influence couples' contraceptive use. According to the findings of an egocentric network study in Madagascar, compared to men with no FP network, men who have any type of FP network are 1.9 times more likely to use modern contraception as a couple. These

findings show that partner education, household decision structure, and peer approval can each shape use in different ways.

The role of close family members such as parents and mother in laws in married women's contraceptive method use is addressed by numerous researchers from different regions (Ilmiya & Sulistiyawati 2022:188; Sekine, Khadka, Carandang, Ong, Tamang & Jimba 2021:6). For example, a study by Sekine et al (2021:6) shows that in Nepal reported the influence of mothers-in-law on their daughter-in-law's decision-making autonomy related to contraceptive use by pressurising newly married women not to use any contraceptive method until they give birth to the ideal number of children. A study in Indonesia has also highlighted the influence of close family members on women's decision-making when choosing contraceptive methods (Ilmiya & Sulistiyawati 2022:188). Another study that conducted a socio-ecological analysis of barriers to adolescents' access to SRH services in Sub-Saharan Africa uncovered that an unsupportive family and a lack of open communication about sexuality issues are key interpersonal-level factors that affect SRH service use (Sidamo et al 2023:109). This demonstrates that family approval and family hierarchy remain important determinants of reproductive decision-making.

The interaction between and the perception of clients on the attitude of the healthcare workers is identified among the key interpersonal level factors associated with the use of MCM by married women (Atuhaire, Ngendakumana, Galadima, Adam & Muderhwa 2021:4292; Goldin Evans, Gee, Phillippi, Sothern, Theall & Wightkin 2024:719). For example, a narrative literature review of articles on the barriers to long-acting reversible contraceptive methods identified client-provider interaction and client satisfaction with provider interaction among key interpersonal level factors with correct and continued use of contraceptive methods (Goldin Evans et al 2024:719). Another systematic review article by Atuhaire et al (2021:4292) on knowledge and attitudes related to contraceptive methods among adolescents in Africa found that a large proportion of adolescents do not use contraceptive methods due to the negative attitude shaped by religious and socio-cultural beliefs and attitudes of healthcare providers toward them. Gebrekidan et al (2024b:15) also report that in Ethiopia, the influential effect of client-provider interaction on married women's contraceptive use is clearly indicated, and women who discussed with healthcare providers in a health facility are 1.84 times more likely to use MCM compared to their counterparts. These findings indicate that provider communication and respectful client handling matter not only clinically, but also socially.

2.7.3 Community-level factors associated with modern contraceptive use

Community-level factors are the collective economic, social, cultural and infrastructural attributes and characteristics that influence a community and impact individuals' decision-making ability to use modern contraceptive methods (Ahinkorah et al 2021:4; Feriani et al 2024:599; Wasswa et al 2021:7). According to the findings by Mejía-Guevara (2020:11), collective community-level factors have a significant effect on total community-level variation in contraceptive use, and the result showed that the association between collective attitudes and contraceptive practice in nine sub-Saharan African countries found that community-level differences account for 33% of the variance (intra-class correlation (ICC)=33.0, 95% CI=30.0, 35.4) of the total variation of contraceptive use.

Previous studies from different regions identified various factors that aggregate at the specific community-level, and these factors include community-level women's education, literacy, poverty, religion, cultural beliefs, perceptions, peer influence, distance to the health facility, polygamous marriage (Ahinkorah et al 2021:6; Feriani et al 2024:604), and aggregate community attitudinal norms towards premarital sex and wife-beating (Mejía-Guevara et al 2020:11). For example, a study in Ethiopia found that women who live in clusters with highly supportive attitudes and norms toward family planning have a 1.37 times more likely chance of using MCM compared to their counterparts (Gebrekidan et al 2024b:15). These findings suggest that community-level factors significantly influence women's decision-making regarding MCM use, highlighting the importance of addressing social norms and attitudes to promote family planning practices. The findings in the empirical literature emphasise that the specific community context can shape contraceptive behaviour even when individual women are willing to use services.

Community-level economic status or poverty level aggregate at the community-level is often mentioned as a significant predictor of MCM by married women (Ahinkorah et al 2021:11). Wasswa et al (2021:7) also found that in sub-Saharan Africa, those women from medium community socio-economic levels are 1.17 times more likely to use MCM compared to their counterparts. In line with this, in Uganda, women living in a cluster with a high poverty level are 46% less likely to use MCM compared to those living in a cluster with a low poverty level. Similarly, in Ethiopia, women living in communities with low-wealth status are 60% less likely to use MCM compared to those living in communities of high-wealth status (Kebede et al 2023:6). These findings suggest that the concentration

of poorer households in a community has a significant impact on the use of modern contraceptive methods among women. The socio-economic composition of a community, particularly the proportion of poor women, appears to influence women's access to and utilisation of MCM. It is widely recognised in the literature that community-level poverty concentrates vulnerable women, which lowers access to reproductive choices.

Community-level education is the other commonly reported community-level predictor of MCM use among married women in different regions, and women living in communities with low aggregate community education are less likely to use MCM regardless of their educational status (Zegeye, Idriss-Wheeler, Ahinkorah, Ameyaw, Seidu, Keetile & Yaya 2022:650; Zeleke & Zemedu 2023:6). For example, in Senegal, women who live in communities with high and medium community literacy status are 1.31 and 1.3 times more likely to use MCM, respectively, compared to those who live in low community education and in Uganda, women from high community education clusters are 1.8 times more likely to use MCM, compared to those who live in low community education clusters (Wasswa et al 2021:7). The study findings by Gebrekidan et al (2024b:14) also supports these findings from Ethiopia, which uncovered that women who live in clusters with high literacy have 1.46 times higher odds of MCM use compared to their counterparts. These findings highlight the impact of community-level access to education on the use of modern contraceptives. When a woman lives in an area where many other women are illiterate, her own educational achievements and aspirations may be negatively affected by the prevailing community circumstances.

Studies in various areas reported the influence of geographical location or residential place among the key predictors that perpetuate inequalities in modern contraceptive use amongst women within the same country (Gobena & Kassie 2024:6; Makumbi et al 2023:8; Tampah-Naah et al 2023:6). In Ethiopia, modern contraceptive use varies across the different regions, as evidenced by a special analysis indicating the highest usage rate in the Amhara region, having the odds 1.88 times higher, while the lowest in the Somali region and Afar region have 96% and 88% lower odds of modern contraceptive use, respectively, compared to women who live in the Tigray region (Fenta & Gebremichael 2021:4). Another study in Ethiopia found that women from Agrarian communities and those from cities are 6.02 and 3.37 times more likely to use MCMs, respectively, compared to women from pastoralist communities (Gobena & Kassie 2024:11). In general, these findings highlight the influence of contextual region on married women’s

contraceptive use behaviours and the need for tailored interventions to address the challenges in each community context.

The mean ideal number of living children, community-level fertility preferences and norms significantly determine married women's modern contraceptive use in different countries (Feriani et al 2024:599; Terefe, Jembere, Enyew & Chekole 2024:58). A study finding from lower- and middle-income countries (Mutumba, Wekesa & Stephenson 2018:430) revealed that young women who live in communities with higher levels of an ideal number of children were 35% less likely to use MCM. For example, in Indonesia, women who live in communities with a high mean ideal number of children have 45% lower odds of MCM use (AOR=0.55; 95% CI:0.47, 0.64) compared to their counterparts (Nurjaeni et al 2021:8). Similarly, in Burkina Faso, women from a high fertility expectation cluster are 25% less likely to have their demand satisfied with MCM (Some et al 2021:9). On the other hand, a study conducted in five sub-Saharan African countries uncovered that women who live in communities where all women wish to wait two or more years before their next birth have an 11.4% and 9.2% higher chance to use short-acting and long-acting MCM, respectively (Zimmerman, Bell, Li, Morzenti, Anglewicz, Principal, Group & Tsui 2019:12). This shows that aggregate community-level fertility norms can either suppress or encourage contraceptive demand depending on the expectations of the social group.

2.7.4 Institutional-level factors associated with modern contraceptive use

The availability and accessibility of MCM, road distance to reach the nearest facility, visits by health workers, the health facility infrastructure, quality of healthcare facilities, and the attitudes and beliefs of healthcare providers towards women are some of the commonly reported institutional-level factors associated with modern contraceptive use by married women in different settings (Ajayi et al 2021:217; Khan et al 2022:8; Mukanga et al 2023:11). For example, according to a study in Bangladesh, the health facility management system, health facility infrastructure, availability and readiness of the nearest health facility to provide a long-acting contraceptive method and the average road distance from women's home to the nearest health facility where LAMC services are available are significantly associated with the uptake of long-acting contraceptive methods (Khan et al 2022:8). In sub-Saharan Africa, research indicates that several key factors drive the use of modern contraceptive methods (MCM). These include geographic

proximity to clinics, active engagement with outreach programmes, and recent interactions with healthcare staff regarding family planning.

Furthermore, the overall quality of care at the institutional level plays a significant role in a person's decision to use these services (Fentie et al 2023:6; Zimmerman et al 2019:8). These findings show that service readiness and convenience are central to contraceptive uptake. For example, a study in West African countries found that women who visited health facilities more than once during the 12-month period before the survey increased the relative risk of using modern contraceptive methods compared to their counterparts (RRR=1.09, 95% CI, 1.05,1.13) (Terefe et al 2024:59). This finding was also supported by a study in Sierra Leone that reported women who visited a health facility in the 12 months before the survey date are 1.34 times more likely to use MCM, compared to those who did not visit a health facility in the same period (Sserwanja, Turimumahoro, Nuwabaine, Kamara & Musaba 2022:7).

In addition to the physical availability of services, people need appropriate information about the services in their vicinity to effectively use services that offer contraceptive methods (Engelman, Hirsch, Lloyd & Massouras 2019:14). According to a study by Ezenwaka et al (2020:6) the health system faces several challenges when it comes to providing contraceptives to clients, including a lack of privacy and confidentiality, stockouts of supplies, the judgmental attitude of healthcare professionals, and a lack of knowledgeable staff. These challenges can lead to barriers to women's ability to access and use contraceptives effectively. Other researchers uncovered that the health system in reaching a large proportion of women with FP education and counselling could have a significant effect on women’s MCM use in different communities (Kidayi, Msuya, Todd, Mtuya, Mtuy & Mahande 2015:48; Zimmerman et al 2019:8). This published evidence highlights that institutional quality affects both access and the trust needed for continued use.

Different articles reported the association between women’s exposure to family planning messages through mass media and their MCM use, and the exposure of women to traditional media outlets such as television and radio impacts their knowledge and contraceptive method use (Ahinkorah et al 2021:9; Chang 2022:2140). There are studies that associate frequent television viewing with increased contraceptive use. For example, watching Television once a week in Indonesia increases the likelihood of using

contraceptive methods by 1.74 times compared to those who do not view television (Dwi, Dwi, Sandra & Matahari 2023:40). Similarly, women's exposure to FP messages through television increases their modern contraceptive use by 4 percentage points in the Philippines (Chang 2022:2140) and by 14% in India (Ghosh, Mozumdar, Chattopadhyay & Acharya 2021:15). However, some findings reported a negative association between mass media exposure and contraceptive use. For instance, Ahimed and Seid (2020:724) reported a surprising finding that young Ethiopian women living in urban areas who were exposed to family planning messages through the media had 62% lower odds of using MCM compared with their counterparts. Similarly, Mutumba et al (2018:430) argue that young women's adoption of modern contraceptive methods is not positively impacted by greater exposure to mass media messages.

Additionally, other investigations found that exposure to the media was positively correlated with women's attitudes regarding modern contraceptive methods, although not necessarily with the use of MCM (Attya & Aboualhuda 2022:18). These findings suggest that while media exposure may influence attitudes towards family planning and contraceptive techniques, it may not directly translate into increased use of modern contraceptive methods. This highlights the need for targeted interventions and comprehensive education programmes to bridge the gap between media messages and actual contraceptive behaviour among young women. The empirical evidence clearly underscores an information-to-action gap, where awareness does not always change into practice.

2.7.5 Societal-level factors associated with modern contraceptive use

Health-related behaviours are often shaped by societal and environmental factors that influence individuals' beliefs and behaviours. Different forms of social norms that discourage contraceptive use have been reported in the existing literature (Agha, Morgan, Archer, Paul, Babigumira & Guthrie 2021:7; Kapadia-Kundu et al 2022:9; Riese, Assaf, Edmeades, Aladejebi & Phiri 2023:11). Women's perceptions of the views of other people living in the same community affect their contraceptive behaviour (Mejía-Guevara et al 2020:16). The social norms that influence individual decision-making related to contraceptive use are often presented as injunctive and descriptive social norms (Agha et al 2021:7; Bhushan, Fisher, Maman, Spiezer, Gottfredson, Phanga, Vansia, Pettifor & Rosenberg 2021:447). Thus, these findings at the societal level underscore that

contraceptive use is shaped by shared expectations, moral judgments, and wider gender orders that extend beyond the immediate household or neighbourhood level.

A study by Bhushan et al (2021:447) in Malawi reported that 56% of young women believed their peers used contraception, which defines the “descriptive social norms” related to contraceptive use; and about 69% of the study participants either agreed or strongly agreed that their peers approved of contraceptive use, which reflects the magnitude of the “injunctive social norms” related to modern contraceptive use. These norms matter because they shape what women think others do and approve of.

Further, a study by Alo et al (2020:7) in Nigeria found that women who perceive that some or most of their close friends use family planning are 2.7 and 3.5 times more likely to use MCM. Similarly, a study among young married women in rural Ethiopia found that women having perceived social approval and perception of friends’ contraceptive use, respectively, are 1.9 and 1.34 times more likely to use MCM compared to their counterparts (Dingeta et al 2021:7). This indicates that the injunctive contraceptive social norms are sustained by social disapproval and internalisation (Gavrilets 2020:3). This could be because a woman evaluates other women's behaviour related to contraceptive use and the acceptability of using contraceptive methods by speculating about the potential negative effects on her reputation or relationships (Riese et al 2023:9). Furthermore, restrictive social norms often discourage open discussion about contraceptive use, making it even more difficult to provide appropriate information that could address barriers related to social norms (Bhushan et al 2021:447; Kapadia-Kundu et al 2022:9). The same study reported that gender norms and women's empowerment are key societal-level factors that influence married women’s modern contraceptive use.

According to a community-based study in Ethiopia, there are higher odds of modern contraceptive use among women with moderate (AOR 1.3, 95%; CI 1.06, 1.77) to high (AOR 1.4, 95%; CI 1.06, 2.06) gender equitable norms compared to women with low gender equitable norms. Women's empowerment, particularly related to decision-making and autonomy, correlates positively with modern contraceptive use; for example, in Bangladesh, women with a higher decision-making power exhibit a 20-27% increase in contraceptive use compared to those having less autonomy (Bhowmik, Biswas, Williams & Dey 2024:1508). This could be the result of women's empowerment influencing contraceptive use by fostering decision-making ability, communication and access to

healthcare services (Vignitha & Smanla 2024:3639), as well as low women's empowerment limits access to healthcare and contributes to the unmet need for modern contraceptive methods in sub-Saharan Africa (Habte, Tamene & Bogale 2023:20).

Furthermore, economic dependence on husbands and prevailing patriarchal attitudes often lead women to rely on husbands' approval for contraceptive choices and limit their reproductive health autonomy (Eva & Habib 2024:128). Studies have also shown that widespread acceptance of wife-beating within communities is negatively linked to contraceptive use and demand. For example, evidence from sub-Saharan Africa indicates that women are about 10% less likely to use contraception in communities where acceptance of wife-beating is more prevalent (Mejía-Guevara et al 2020:15). Generally, societal norms, power relations, and gendered expectations can either promote or suppress contraceptive behaviour at the population level.

The reviewed literature on multi-level factors associated with MCM use shows individual knowledge and attitudes, partner and family dynamics, community norms and composition, institutional readiness, and societal gender structures all interact to shape contraceptive behaviour. However, much of the evidence remains fragmented across countries and levels, and relatively few studies integrate these determinants into a single coherent, context-specific analysis. This creates a gap for the Bale Eco-region, where the interplay of socio-demographic, relational, community, institutional, and normative factors may differ from the national or regional averages reported in prior studies. The present study addresses this gap by examining the factors associated with modern contraceptive method use among married women in the Bale Eco-region through a socio-ecological lens, thereby capturing both the strength of associations and the contextual explanations behind them.

2.8 FACTORS ASSOCIATED WITH UNMET NEEDS FOR MODERN CONTRACEPTIVE METHODS

The literature review generally underscores that the unmet need for MCM is shaped by the interaction of individual, relational, community, institutional, and societal conditions rather than by a single factor. Generally, the factors are contextual and multifaceted, appearing at the various levels of the socio-ecological model (Azanaw et al 2022:3; Shagaro et al 2022:9).

2.8.1 Intrapersonal level factors associated with unmet needs for modern contraceptive methods

Intrapersonal level factors, which relate to individual characteristics and personal beliefs, play a significant role in unmet needs for contraception among married women. For example, age of the women is among the frequently reported intrapersonal level factors associated with unmet needs for contraceptive use and older women in Turkey are at almost 8 percentage points lower risk of having unmet needs for contraception compared to those aged 18-24 years (Ökem & Pekkurnaz 2024:95). Most researchers reported women's age having a negative association with unmet needs for contraceptive methods, indicating that as women's age increases, the tendency to have unmet needs for contraceptive methods declines (Mosuse & Gadeyne 2022:12; Kabagenyi, Wasswa & Kayemba 2024:5; Shagaro et al 2022:7).

According to a study in four African countries, Burundi, Rwanda, Tanzania and Uganda, younger women aged 15-24 generally exhibit unmet needs for contraception with probabilities ranging from 19.2% to 34.1%. The same study found that 34.1% of younger women aged 15-24 in Burundi have unmet needs for contraception compared to 28.2% among those aged 35-49 (Kabagenyi et al 2024:5). Another study by Teshale (2022:8) in sub-Saharan Africa also reported older women generally have lower risks of unmet need for spacing pregnancy indicating women in the age group between 30-34, 35-39, 40-44 years, respectively, have 58%, 68% and 82% lower risk of unmet needs compared to young women between the age of 15-19 years. This indicates that unmet need is more common among younger married women, possibly because of weaker negotiating power, less reproductive experience, or less exposure to family planning information.

The educational status of the women is another intrapersonal level factor affecting unmet needs for contraception among married women in different regions (Asif et al 2021:5; Fitrianingsih & Deniati 2022:5; Hatzimanouil, Natsis, Lazaridis, Giannakos, Hantau, Giatsis & Sikaras 2023:46). For example, in Turkey, the probability of women having unmet needs for contraception significantly decreases as the women's educational level increases, where women having a high school or higher education have a 9.6% lower risk of having unmet need for contraception compared to those women with no education (Ökem & Pekkurnaz 2024:95). Similarly, women in East and South Africa who received secondary and higher levels of education have 18.7% and 39.7% less chance of having

unmet needs for modern contraception, respectively, than those women with no education (Anik, Islam & Rahman 2022:7). This suggests that, through its effects on knowledge, awareness, and decision-making ability, education reduces the risk of unmet need for MCM among women.

According to research conducted in four sub-Saharan African countries, the comparison of unmet needs between women with no education and those with secondary or higher education ranges from 32.9% to 24.2% in Burundi, 20.8% to 15.8% in Rwanda, from 31.2% to 25.8% in Uganda, and from 23.1% to 22.2% in Tanzania (Kabagenyi et al 2024:5) and the same is true in Ethiopia where the odds of unmet needs for contraception among women with primary education is 13% less than those women with no formal education (Alem & Agegnehu 2021:5; Woldeamanuel, Gessese, Demie, Handebo & Biratu 2023:4). This suggests that education not only improves knowledge about contraceptive methods but also empowers women to adopt healthier reproductive behaviours.

However, there are also findings highlighting that the association between education and unmet needs for contraception is not always linear. In some regions of Asia and sub-Saharan Africa, women with higher education have been associated with higher unmet needs, potentially due to cultural norms and access challenges despite higher levels of awareness (Anik et al 2022:7; Senderowicz & Maloney 2022:699). A study by Gayatri and Fajarningtiyas (2022:178) in Indonesia found that young women with higher education levels were associated with increased rates of unmet need for contraception. These inconsistencies of findings among these publications indicate that education alone may not be sufficient if services and social conditions do not support contraceptive use.

Anik et al (2022:7) consistently reported that employed women tend to have lower unmet needs for contraception and vice versa. In South Asia, non-working women have 1.23 times higher odds of experiencing unmet needs for contraception compared to women who are employed and receive pay, and this study also found non-working women have 1.13 times higher odds of unmet needs for contraception compared to their employed counterparts. In Tanzania, women with formal employment and those with informal employment respectively have a 32% and 40% lower risk of experiencing an unmet need for contraception (Rwabilimbo, Ahmed, Mshokela, Arora & Ogbo 2023:13). There are also research findings elsewhere that argue employment couldn’t have a statistically

significant association with unmet needs for contraception. For example, research findings in Uganda and Indonesia reported no significant association between employment and unmet need for contraception, suggesting other factors related to access to health facilities and cultural norms mediate the findings (Van den Broeck 2020:524; Kholifatullah, Laili, Imania, Sulistiani & Salim 2024:64).

On the contrary, a study in Ethiopia reported working women having higher odds of unmet need for contraception (AOR=1.18; 95% CI:1.02, 1.37) compared to women who do not work (Alem & Agegnehu 2021:5). Similarly, inconsistencies in the effect of employment on unmet needs across different settings could be explained by the progressive nature of an individual's behaviour, from gaining awareness through the intention to use a method to the actual practice of contraceptive use. For example, when a woman gets an employment opportunity, she needs to become free of the additional burden of caring for additional children, where this feeling will shift to a demand for contraception. However, for this demand to be translated into practice, there should be good access to MCM and less pressure from social groups.

Asif et al (2021:4) also report that the attitude of women towards contraception has been reported among the predictors of unmet needs for MCM. Negative attitudes, often rooted in cultural and religious beliefs, can discourage married women from using it even when they can have access to it. On the other hand, unmet need does not always reflect lack of availability alone, but also reluctance shaped by beliefs and preferences.

Fitrianingsih and Deniati (2022:4) found that knowledge and awareness are other intrapersonal-level factors that influence unmet needs for contraception. Women who lack appropriate information about family planning are less likely to use contraceptive methods, even if they desire to space or limit pregnancy, and the finding showed that, in Indonesia, women low awareness about family planning information are more likely to have unmet needs for contraception. Ammie, Arefaynie, Adane, Hussein and Hassan (2024:8), in Ethiopia reports that women identified as having poor knowledge about family planning have higher odds (AOR=1.9) of unmet needs for contraception. On the contrary, Teshale (2022:10) states that a study in sub-Saharan Africa described that women who had awareness about FP were 1.26 times more likely to have unmet need for limiting childbirth compared to women with low knowledge. This suggests that access to accurate

sources of information and education about family planning plays a crucial role in meeting the contraceptive needs of women in various contexts.

The number of children and parity are common reproductive characteristics of women frequently reported as predictors of unmet needs for MCM, and in Nepal, women with up to two children (AOR:5.212; CI:1.163, 23.363) and three or more children (AOR:8.758; CI:1.691,45.355) are more likely to have a higher unmet need for contraception than women without a child (Ghimire, Shah, Baral, Malla & Thapa 2023:15). Another study in Indonesia echoed a similar finding where women with 3-4 children are 9.2 times more likely to have unmet needs for contraception (Baroya, Kuntoro, Salim & Devy 2024:179). Similarly, in Ethiopia Azanaw et al (2022:3) state that women having five or more children have 1.98 times higher odds of unmet needs for contraception compared to those women having less than five children, and where, Alemu et al (2024:9) echoed a comparable finding in Ethiopia, that married women having >=5 alive children have 14% higher odds of having unmet needs for contraception (AOR=1.14 (1.04–1.24) compared to those not having any children. This demonstrates a clear trend across different countries and locations that women with more children are more likely to have unmet needs for contraception that need to be addressed with programmes tailored to the reproductive health needs of women. In practical terms, this implies that parity should be taken into account when planning counselling and service delivery for married women.

2.8.2 Interpersonal level factors associated with unmet needs for modern contraceptive methods

The unmet needs for modern contraceptive methods are influenced by various interpersonal factors. These factors encompass individual interactions, communication dynamics, and social influences that shape decision-making and behaviours regarding contraception (Memon et al 2024:11). The relationship between couple discussions, partner communication, and unmet needs for contraception is a complex issue and is influenced by various socio-demographic, cultural, and contextual factors. Research has shown that couples who engage in open and honest communication about contraception are more likely to meet their contraceptive needs or to have less risk of unmet need for contraception (Asif et al 2021:4; Getaneh, Negesse, Dessie, Desta & Moltot 2020:8; Sarnak, Wood, Zimmerman, Karp, Makumbi, Kibira & Moreau 2021:12). According to a systematic review of articles, women who do not discuss contraceptive use with their

partner have higher odds of having unmet needs for contraception (OR=3.52; 95% CI:2.56, 4.87) compared to those who discuss with their husbands (Getaneh et al 2020:8). This could be a marker that unmet need is often rooted in relationship dynamics rather than individual preference alone.

Asif et al (2021:4) account that Pakistani women whose husbands do not support contraceptive use have a 2.3 times higher risk of having unmet needs for contraception compared to those whose husbands do not oppose contraceptive use. Similarly, in Ethiopia, women whose husbands don't support and disapprove of them using contraceptive methods have 2.1 times (AOR=2.1; 95% CI:1.08, 4.00) more likely risk of having an unmet need for contraception compared with women whose husbands supported and approved them to use contraceptive methods (Ammie et al 2024:8). It is also widely reported that husbands indirectly influence their wives' use of basic health services or unmet needs for contraception, through their dominance in household decision-making.

Compared to married women with equal participation in household decision-making in Indonesia, women who reported inequality in household decision-making have a 4.1 times greater risk of experiencing unmet needs for contraception (OR=4.1; 95% CI:1.05-16.44) (Baroya et al 2024:180). On the contrary, another controversial finding was reported in Tanzania, where women who are not involved in household decision-making have 36% lower odds of having an unmet need for contraception (AOR=0.64; 95% CI:0.51, 0.81) compared to those women involved in household decision-making (Rwabilimbo et al 2023:16). These mixed findings suggest that household decision-making may operate differently depending on local gender norms and the meaning of autonomy in specific settings.

The association between peer influence and social networks on unmet needs of women for contraception has been reported in various contexts. Social networks play a crucial role in providing necessary support and information to access and use modern contraceptives. For instance, in the Philippines, low-income women rely on their peers for emotional and financial support to use family planning (Luu, Brubacher, Lau, Liu & Dodd 2022:6). Similarly, in Benin, social networks are used to reduce socio-normative barriers to contraceptive use (Kim, Igras, Barker, Diakité & Lundgren 2022:11). Another study in Niger supports the thought that stronger ties with peer groups influence contraceptive

decisions, thus affecting the likelihood of having unmet needs among married female adolescents (Shakya, Challa, Nouhou, Vera-Monroy, Carter & Silverman 2021:1730). Such effects of positive social dynamics in reducing unmet need for MCM could be explained through the role of having better social support facilitating the acceptability of contraceptive use or improved manageability of contraceptive use opposition.

Furthermore, men's social networks have also been found to influence their partners' contraceptive use. In Madagascar, men's social networks sometimes do not provide accurate information, hindering contraceptive use among their partners (Comfort et al 2021:7). According to Hakizimana and Odjidja (2021:7) reported among conservative communities in rural Burundi, incidents of side effects related to modern contraceptive use are shared within social groups, heightening fear of side effects and exacerbating unmet needs for modern contraceptive methods among married women. These findings highlight that shared experiences within peer groups reinforce negative perceptions and discourage utilisation. Accordingly, social networks can either support contraceptive use or perpetuate unmet need through misinformation.

2.8.3 Community-level factors associated with unmet needs for modern contraceptive methods

At the community-level, the aggregate socio-economic characteristics of women such as community-level literacy or average level of schooling by women at a province level, the average poverty level or wealth status aggregate at the province level, and aggregate community-level fertility norms such as the average level of children per women in a cluster, and average perceived husband approval of contraceptive use influence unmet needs for modern contraceptive method among married women (Solanke, Oyinlola, Oyeleye & Ilesanmi 2019:9). According to Teshale (2022:10), community-level literacy is a crucial factor affecting unmet contraceptive needs. The protective effect of high community literacy arises when women live in communities where most other women are educated. For example, a study in sub-Saharan Africa found that married women who reside in communities with higher literacy rates have a 13% lower risk of experiencing unmet contraceptive needs (AOR=0.87; 95% CI:0.82, 0.92) compared with those living in areas with low literacy rates.

Alem and Agegnehu (2021:5) also reported that a comparable finding was reported in Ethiopia, indicating that women residing in communities with high levels of women's education have a 27% lower risk of experiencing an unmet need for contraception (AOR=0.73; 95% CI 0.59 to 0.89) compared to those living in communities with low levels of women's education. Conversely, there are also researchers who reported that living in communities with higher literacy levels increases the risk of having unmet need for contraception. For example, a study in Northern Nigeria reported that women who live in communities with high literacy levels have a 23% higher risk of having an unmet need for contraceptive methods compared to their counterparts (Solanke et al 2019:9). The inconsistent findings on the effect of education on unmet need underscore that it is the effect of community education or literacy in challenging local norms and improving service access that matters most, rather than simple school attendance rates.

High media exposure is another community-level predictor of unmet needs for contraception reported by researchers in different countries (Rwabilimbo et al 2023:12; Alem & Agegnehu 2021:5). For example, a study in Ethiopia, uncovered that women living in clusters with high media exposure have 19% less risk of having unmet needs for contraception (AOR=0.81, 95% CI 0.68 to 0.98) compared with women living in low media exposure communities (Alem & Agegnehu 2021:5). These could be due to the better access to family planning information and knowledge due to the frequent media exposure. The study in Northern Nigeria by Solanke et al (2019:9) indicated that living in communities with higher levels of knowledge about contraceptives appeared to have an 18% lower risk of unmet needs for contraceptive methods among married women. These findings highlight the role of media use to disseminate family planning information, and improving knowledge about modern contraceptives at the community level is important to address unmet needs for contraception.

The communities with a high proportion of ideal family size or the ideal number of children per family are another community-level factor associated with unmet needs for contraception among married women. For instance, according to a research report in four African countries (Burundi, Uganda, Tanzania and Rwanda), as the average number of children per woman in a community increases, the probability of having unmet needs for contraception also consistently increases (Kabagenyi et al 2024:7). Another study in the Democratic Republic of Congo reported that women living in communities with medium (AOR=1.44; 95% CI:1.18, 1.75) and high (AOR=1.42; 95% CI:1.10, 1.84) proportions of

women with an ideal family size of 6 children or less had significantly higher odds of unmet needs for contraception compared to those women who live in communities with a low proportion of women with an ideal family size of 6 children or less (Mosuse & Gadeyne 2022:9). Emphasising the direct community fertility principles in increasing unmet need when they favour larger families.

2.8.4 Institutional-level factors associated with unmet needs for modern contraceptive methods

The institutional-level factors are related to access to health services, availability of and exposure to contraceptive information and services in a community. Access to healthcare facilities is a factor associated with the unmet need for contraception reported in various contexts (Kabagenyi et al 2024:7; Solomon, Nigatu, Gebrehiwot & Getachew 2019:170; Tadesse et al 2022:6). In a study in Ethiopia, women who live in regions with better access to health facilities demonstrate lower odds of unmet needs (Yalew et al 2020:529). This confirms that service reach and physical accessibility remain important determinants of unmet need.

Another study found that in Ethiopia, women who do not perceive distance to the nearest health facility as a major barrier have a 15% lower likelihood of experiencing unmet need for contraception compared to those who do (Alem & Agegnehu 2021:6). Exposure to FP messages is the other institutional-level factor associated with an unmet need for contraception in different settings. For instance, women with no access to family planning messages in Rwanda and Burundi, respectively, have a 20.8% and 30.8% higher odds of unmet needs for contraceptive methods compared to their counterparts (Kabagenyi et al 2024:6). This argues that it is the service information, not just physical proximity, that matters in reducing unmet need.

According to a report by Tadesse et al (2022:6), women in Ethiopia, who are exposed to a health extension programme disseminating family planning messages, have 54% lower odds of unmet need for contraceptive methods (AOR=0.46; 95% CI 0.37, 0.59) compared to women who are not exposed to the programme. These findings highlight that improvement in the accessibility and availability of family planning information and services is a key factor in addressing unmet needs for contraception. Furthermore, improving demand-side interventions that address individual-level beliefs, attitudes and

preferences towards contraception are equally important as that of the supply-side interventions (Pillai & Nagoshi 2023:140). Thus, the message is clear, institutional interventions become successful through anchoring family planning information dissemination through outreach, and counselling along with service availability improvement packages.

2.8.5 Societal-level factors associated with unmet needs for modern contraceptive methods

Societal-level factors are the broad influences, including economic policies, cultural norms, legislation, and social inequality that affect the entire population and communities (Bimber & Gil De Zúñiga 2022:145). The factors at this level remain powerful predictors of unmet need as they shape the wider environment in which contraceptive need is expressed, negotiated, and met.

Geographical regions, place of residence, gender norms, and attitudes towards wife beating are among the common societal-level factors associated with unmet needs for contraceptive methods in different contexts (Azanaw et al 2022:3; Debelew & Habte 2021:5; Fentie et al 2023:8; Wang & Cao 2019:7). This is also reported by a study in Jember Regency, East Java, Indonesia, indicating women who agree with the husband's beating of his wife have an 8 times more likely risk of having unmet needs for contraception (OR 8; 95% CI:2.53, 25.80) compared to those who disagree with a husband beating his wife (Baroya et al 2024:179). Inequalities in unmet needs for contraceptive methods also vary by geographic location and place of residence (Alemu et al 2024:9; Gebrekidan et al 2024a:15; Wang & Cao 2019:6). The unmet needs for contraceptive methods significantly differed between geopolitical zones within nations and/or states. A persistent discrepancy in the magnitude of unmet needs for contraception among geopolitical zones and inter regions has been reported in African countries including the Democratic Republic of Congo, Nigeria and Ethiopia (Azanaw et al 2022:3; Mosuse & Gadeyne 2022:9; Wang & Cao 2019:8).

For instance, the analysis of a national survey in Ethiopia indicated a significant regional disparity in unmet needs for MCM, where women living in the Oromia region have higher odds of unmet needs for contraception (AOR=1.53; 95% CI:1.10, 2.11) and on the contrary women living in Somali region have a 63% less odds of having unmet needs for

contraception (AOR=0.37; 95% CI:0.22, 0.61) compared to those women living in the Tigray region (Azanaw et al 2022:3). These pieces of findings uncovered that unmet need is mainly shaped by broader structural and normative inequalities across places.

Changes in family planning programmes in Zimbabwe, Malawi, Kenya, Rwanda, Zambia and Ethiopia contributed to a more than 30% increase in contraceptive prevalence since the 1990s, substantially reducing unmet need for contraceptive methods in these countries. Successful family planning programmes and policy efforts prioritise resources, tailor strategies to community context, and address inequalities (Sully et al 2020:28). To address the disproportionately high unmet needs for contraception among adolescent girls and young women living in developing regions of Ethiopia, consistent implementation of effective family planning policies across the different regions is recommended in Ethiopia (Asmamaw & Negash 2022:9). Overall, the findings at this level reinforce the point that policy effectiveness depends on whether programmes are adapted to local realities.

Across these five levels, the literature shows that unmet need for modern contraception is the result of overlapping drawbacks that affect knowledge, negotiation, access, and social acceptance. However, the evidence remains scattered across countries and levels, and relatively few studies bring these determinants together in a single landscape-level analysis. This creates a clear gap for the study area, where married women may face a distinct combination of age-related, relational, community, service and societal barriers. The present study therefore seeks to examine these factors in the Bale Eco-region using a socio-ecological approach so that the findings can inform both the interpretation of unmet need and the design of locally appropriate interventions.

2.9 STRATEGIES FOR IMPROVED MODERN CONTRACEPTIVE METHOD USE

A strategy can be described as a broad, overarching plan designed to accomplish one or more objectives in situations characterised by uncertainty (Barad 2018:3). Strategies in family planning refer to the various methods and approaches used to enable individuals and couples to achieve their reproductive goals in attaining their desired number and timing of children (World Health Statistics 2023:1). Strategies that enable every person around the world to access quality family planning information and services ensure individual human rights (UNFPA 2022:10). Therefore, implementing effective strategies

to enhance the use of modern contraceptive methods is critically important, especially in contexts where a large proportion of women who wish to avoid pregnancy are not using modern contraception (United Nations, Department of Economic and Social Affairs, Population Division 2022c:6).

The strategies for improved modern contraceptive use could be tailored to the intrapersonal level, interpersonal level, community-level, institutional and societal or policy levels across the socio-ecological model (Ajayi et al 2021:218). This review, therefore, presents strategies not as isolated actions but as interrelated interventions that address different levels of influence on contraceptive behaviour.

2.9.1 Intrapersonal level strategies

At the intrapersonal level, strategies that focus on addressing individual beliefs, attitudes and decision-making processes play significant roles in improving modern contraceptive use in different regions (Ajayi et al 2021:218; Manet et al 2023:9; Whidden, Keita, Treleaven, Beckerman, Johnson, Cissé, Liu & Kayentao 2021:12). Interventions that improve women's decision-making autonomy are an important intrapersonal-level strategy for improved use of modern contraceptive use by women (Damtew & Fantaye 2024:10; Guracho, Belay, Alemayehu, Birhanie, Gelaw, Agaje, Ayana & G/meskel G/eyesus 2022:4). A study by Butler, Walker, Pablo and Bartels (2021:8) in the Democratic Republic of Congo, emphasised the value of improving women's ability to negotiate with their partners and jointly make decisions on the use of financial resources, which better contributes to their decision-making ability to use modern contraceptive methods. Such pieces of evidence highlight the role of adopting strategies that empower women could improve the overall magnitude of modern contraceptive methods in a community.

Strengthening interventions that improve individuals' personal beliefs and attitudes related to family planning and modern contraceptive use is an important strategy at the intrapersonal level for better improvement of MCM use in rural and poor resource settings. For example, a scoping study on the resilient and accelerated scale-up of DMPA-SC in Nigeria (RASUDIN) identified interventions that provide accurate information about the benefits and safety of modern contraceptive methods to women as a key strategy that highly motivates women to use MCM (Osinowo, Ekholuenetale, Ojomo, Hassan & Ladipo

2020:8), highlighting that behavioural change begins with correcting misinformation and supporting informed choice.

Strategies that provide accurate information and education related to contraceptive methods to women could help them gain the right information and avoid misconceptions and myths related to contraceptive use (Nabhan, Kabra, Ashraf, Elghamry, Kiarie, Atwa, Bahnasy, Elgendi, Elshabrawy, Eltayeb, Galal, Kodsy, Makram, Mostafa, Nabhan, Sakna, Salama, Snosi, Wagih & Zenhom 2023:9). This is also evident in a study by Manet et al (2023:9) that was conducted in Guinea found that women with better-perceived benefits of contraceptives, such as ease of use, absence of side effects, and choices, were more likely to use modern contraceptives, suggesting the importance of strengthening interventions that provide appropriate information to women for better uptake of modern contraceptive methods.

Furthermore, the role of improving a woman's self-efficacy (a woman's confidence in her ability to perform a specific behaviour) in improving the use of MCM was emphasised by various researchers due to the fact that women with better self-efficacy have lower odds of holding the belief that contraceptive use causes infertility and are more likely to use MCM compared to those women with poor self-efficacy (Akonor, Ayanore, Anaman-Torgbor & Tarkang 2021:1856; Kapadia-Kundu et al 2022:9; Sedlander et al 2022:7). Therefore, interventions that enhance self-efficacy, such as providing training and individual counselling, using motivational interviewing techniques and encouraging women to set personal goals, are recommended to improve modern contraceptive use (High Impact Practices in Family Planning [HIPs] 2022a:7). Furthermore, strategies that address psychological and motivational factors such as the fear of unwanted pregnancy and the desire for economic stability play a significant role in the use of MCM. Some of the effective strategies to address Psychological and motivational factors include using motivational interviews to address fears and misconceptions about MCM and encouraging women to set personal goals for family planning and child spacing (Athey, Bergstrom, Hadad, Jamison, Özler, Parisotto & Sama 2023:11; Osinowo et al 2020:6). This implies that intrapersonal strategies work best when they combine information, confidence-building, and values clarification.

2.9.2 Interpersonal level strategies

According to a report in D'Souza et al (2023:89), the interpersonal level strategies for improving the use of MCM by married women often focus on interventions that promote interpersonal communication, motivation, and support from their partners, friends, and healthcare workers. For example, a study on the effectiveness of interventions found that interpersonal communication, contraceptive counselling, motivational interviewing, and school-based education were effective strategies at the interpersonal level. Promoting couple communication and male-oriented FP programmes, including male FP workers, is encouraged to address communication barriers in different communities and among married Pakistani couples suggested the use of targeted programmes that involve male partners and improve inter-spousal communication to address misconceptions related to contraceptive methods, husbands' influences in women's decision-making and discordance in fertility preference that hinder women from using contraceptive methods (Sarfraz, Hamid, Kulane & Jayasuriya 2023:15). A community-based study in Ethiopia also emphasised the pivotal role of interventions that promote couple discussion in enhancing male participation in FP programmes and better family planning service delivery in rural regions (Wondim, Degu, Teka & Diress 2020:201). This could be interpreted as improving contraceptive use requires engaging the relationship unit, not only the woman herself.

Furthermore, good communication and interpersonal relationships between family planning service providers or healthcare workers and clients are key strategies for improved uptake of MCM in various settings; thus, in Nepal and Bangladesh, counselling and home visit after birth significantly contributes to the reduction of unmet needs during the 24-month postpartum period (Khan, Khanam, Ali Khan, Islam & Harris 2023:12; Puri, Huber-Krum, Canning, Guo & Shah 2021:13). A study in Ethiopia also highlighted the importance of interventions that establish positive client-provider interaction, thorough counselling, and respect for clients' fertility intention for better uptake and lesser switching and discontinuation of MCM by clients (Yirgu, Wood, Karp, Tsui & Moreau 2020:8). These findings suggest the importance of targeted interventions that promote interpersonal communication, such as counselling and home visits by trained individuals, can effectively reduce unmet needs for contraception among women in low-resource settings.

2.9.3 Community-level strategies

A systematic review of strategies and interventions in low- and middle-income countries found that educational interventions, financial incentives and comprehensive post abortion interventions at the community level improve modern contraceptive use (Meherali, Rehmani, Ali & Lassi 2021:381). Strategies that apply community engagement, participatory communication and strengthening the relationship between the health system and communities were found to be effective in increasing modern contraceptive use through empowering users, enhancing provider responsiveness and addressing local barriers in Indonesia and Uganda (Boydell, Nulu, Hardee & Gay 2020:11; Kasim, Hasifah, Kadrianti & Jamaluddin 2024:40). Kim et al (2022:13) suggested the importance of social network interventions that better address socio-normative barriers and enhance community dialogue, thus improving the use of modern contraceptive methods among low-income populations in rural Benin. At the community-level, the evidence points to the value of dialogue, participation and norm change.

Social norms, including collective norms on gender, fertility, and family planning, influence the use of MCM across societies. For example, a study conducted in Nigeria and Zambia found that various types of social norms affect the use of modern contraceptive methods, underscoring the importance of carefully understanding and measuring these norms when designing programmes or policies related to modern contraceptive provision (Riese et al 2023:12). In settings where norms strongly shape behaviour, community engagement becomes a practical entry point for change.

2.9.4 Institutional level strategies

The institutional level, which includes health service organisations and associated programme interventions, has a significant impact on married women's usage of modern contraceptives. Previous researchers from around the world have emphasised the significance of tailored institutional-level strategies that increase demand and improve access to family planning services that offer modern contraceptives (Anik et al 2022:11; D'Souza et al 2023:89; Memon et al 2024:12). The findings by a meta-analysis study in South Asia on effective strategies found institutional-level actions such as integrating family planning into health services and innovative service delivery models that increase access to services such as franchised family planning clinics work better in increasing

MCM use (Memon et al 2024:13). A global systematic map of literature on family planning interventions outlined the role of programme interventions that apply effective communication and psychosocial support such as: “contraceptive counselling, motivational interviewing, providing information, decision-making aids, group-based motivation, multi-component counselling approaches, and behavioural techniques” in improving MCM use (D’Souza et al 2023:86). Another scoping review of policies among five Latin American and African countries, including Brazil, Ecuador, Egypt, Ethiopia and Rwanda, identified key institutional-level interventions, including integration of FP into primary health care, reliable method supply and method mix, improving providers’ skills and quality of services and outreach-based service delivery modalities (Hellwig et al 2024:20). This indicates that institutions influence use not only through services, but also through how services are organised and delivered.

Furthermore, research findings at the individual country level also suggest key institutional-level programme factors for improved contraceptive uptake. For example, Wasswa et al (2021:7) emphasised the need to invest in community-level initiatives such as family planning outreach services, mass media campaigns, and community mobilisation efforts to improve information dissemination, raise awareness, and promote the use of modern contraceptive methods (MCM). Ensuring proximity to health facilities is among the key strategies to improve the acceptability and use of contraceptive methods among married couples in rural villages in different countries (Khan et al 2022:11; Kwawukume, Laar & Abdulai 2022:7; Memon et al 2024:12; Whidden et al 2021:12).

In Ethiopia, the national flagship Health Extension Program that brought packages of disease prevention and health promotion interventions, including contraceptive methods, to the doorsteps of rural communities significantly improved access to and use of modern contraceptive methods (Kibret & Gebremedhin 2022:2). Khan et al (2022:11) state that in rural Bangladesh, improving the infrastructure and readiness of health facilities is among the key institutional-level strategies to enhance the use of MCM across regions. These findings highlight the importance of adopting context-specific and innovative strategies, such as community health workers, volunteers, lady health workers and health extension workers, to ensure access to modern contraceptive methods in hard-to-reach communities.

According to a report by Memon et al (2024:12), health facility-based interventions, including social franchising and franchised clinic interventions (OR 1.32; 95% CI 1.21–1.44), improved the use of MCM among women in South Asia. A study in Kinshasa, DRC, suggested integration with social marketing strategies that could leverage the private sector for improved contraceptive methods access and use in low-income countries (Hernandez, LaNasa & Koba 2023:10). Training healthcare workers plays an essential role in enhancing communication and improving the delivery of contraceptive methods, particularly in rural settings. Trained healthcare workers provide appropriate information to clients, thus decreasing misconceptions and myths, with better acceptability and use of MCM (Hakizimana & Odjidja 2021:7; Memon et al 2024:12).

Training also improves the quality and accessibility of contraceptive methods to clients. For example, in India, knowledge gaps and misconceptions among healthcare workers and clients are addressed through carefully designed training programmes (Nayak, Kaushal & Vishwavidyalaya 2024:20). According to Sileo, Muhumuza, Sekamatte, Lule, Wanyenze, Kershaw and Kiene (2022:6), community-based intervention combining health workers' training with transformative community dialogue significantly improved contraceptive use in rural Uganda. These studies emphasise the importance of training healthcare workers and communities as a key strategy to equip them with the knowledge and technical skills needed to communicate effectively and provide appropriate information and contraceptive methods to clients. Institutional strategies are therefore strongest when they combine supply readiness with provider competence and community linkage.

In South Asia, the integration of FP into existing reproductive health services was found to be an effective strategy that contributed to the improved use of MCM (OR 1.53; 95% CI 1.07-2.20) (Memon et al 2024:6). Researchers also studied the value additions of integrated family planning programmes for better acceptability and accessibility of contraceptive methods in Africa. For example, in Malawi, the integration of family planning into outreach-based immunisation services substantially improved the acceptability and availability of FP services in contexts where women face barriers to access and husbands are not supportive of family planning (Hamon, Krishnaratne, Hoyt, Kambanje, Pryor & Webster 2020:7). A study by Cooper, Wille, Shire, Makoko, Tsega, Schuster, Hausi and Gibson (2020:13) from the same country, revealed substantial perceived benefits to both

providers and clients (such as time-saving for both the providers and clients and improved health status) due to integrated interventions.

The integration of community health workers into the general health system is a recommended strategy for poor resource settings in general (Westgate, Musoke, Crigler & Perry 2021:14). A systematic review of safety, acceptability and effectiveness of the provision of injectable contraceptive methods by community health workers (CHWs) in sub-Saharan Africa recommended that policymakers consider the integration of CHWs into the programmes for better access to hard-to-reach areas (Ayuk, Yankam, Saah & Bain 2022:13). Incorporating gender-transformative activities into post-natal contraceptive strategies is crucial for challenging gender norms and addressing broader health system factors, thereby supporting women's bodily autonomy (Castro, Kabra, Coates & Kiarie 2025:11). According to Diamond-Smith, Vaishnav, Choudhary, Sharma, Kachhwaha, Panjalingam, Vallin, Das and Gopalakrishnan (2024:9) a gender transformative intervention among young married couples in rural India demonstrated improved contraceptive method use and reduced intimate partner violence.

2.9.5 Societal and policy strategies

Social norms, including collective norms on gender, fertility, and family planning, influence the use of MCM across societies. For example, a study conducted in Nigeria and Zambia found that various types of social norms affect the use of modern contraceptive methods, underscoring the importance of carefully understanding and measuring these norms when designing programmes or policies related to modern contraceptive provision (Riese et al 2023:12). Social accountability interventions enhance the quality of health services and uptake of contraceptive methods in Ghana and Tanzania (Cordero, Steyn, Boydell, McMullen, Habib, Nguyen, Nai, Shamba & Kiarie 2020:10). Boydell et al (2020:10) investigate the use of social accountability interventions and found it to be a powerful tool in facilitating a more productive dialogue on family planning that dissolves long-held opposition in a society in Ghana where the issue of sexual and reproductive health is often considered a sensitive issue. This suggests that broader norm change and accountability mechanisms can support method uptake where silence and stigma remain strong.

Social and Behavioural Change interventions that address individual, relational, and social barriers to contraceptive use are essential strategies (Skinner, Hempstone, Raney, Galavotti, Light, Weinberger & Van Lith 2021:389). Nabhan et al (2023:7) state that Multifaceted demand generation strategies are recommended for better adoption, coverage and sustainable use of modern contraceptive methods. Strategies that use innovative SBC that diffuse family planning ideas through social networks are also suggested in the literature. A longitudinal study by Kim et al (2022:13) reports that training and engaging influential network actors to facilitate dialogues about family planning, gender, and other social norms within their networks, reinforced by information from local radio programmes and service linkages, significantly improved social network communication on fertility desires and contraceptive method use. Another innovative approach that used mobile phone-based messages in Palestine improved perceived norms about friends' contraceptive use and intention to use effective contraceptives (McCarthy, Aliaga, Palacios, Gallardo, Huaynoca, Leurent, Edwards, Palmer, Ahamed & Free 2020:10). These approaches show that policy and communication strategies can shape social expectations in ways that support contraceptive choice.

Task sharing is another policy-level strategy recommended to address challenges related to the availability and accessibility of family planning services. According to the WHO, task sharing corresponds to the safe expansion of tasks and procedures that are usually done by higher-level professionals to lower and mid-level healthcare professionals like midwives, nurses, and auxiliaries (Kim, Sorhaindo & Ganatra 2020:59). For example, a previous study in five sub-Saharan African countries, namely Burkina Faso, Cote d'Ivoire, Ethiopia, Ghana, and Nigeria revealed a significant increase in contraceptive uptake during task-sharing programme implementation periods where community-based distributors, midwives, and nurses with training were engaged in the provision of contraceptive pills and long-acting reversible contraceptives (Osinowo et al 2020:7; Ouedraogo, Habonimana, Nkurunziza, Chilanga, Hayfa, Fatim, Kidula, Conombo, Muriithi & Onyiah 2021:9).

Performance-based financing is another key policy-level strategy for improved modern contraceptive use, particularly in poor resource settings. The strategy in which financial incentives are tied to the performance of health facilities that improve the availability and quality of family planning services has been tried in various contexts, with varying degrees of success and challenges (Drouard, Brenner, Antwisi, Toure, Madhavan, Fink & Shapira

2024:141). According to Drouard et al (2024:141), a study in the Democratic Republic of Congo found that performance-based financing contributed to improved service readiness and performance quality, while having a modest effect on increasing modern contraceptive use. Further, Gervais, Odongo and Maima (2022:27) emphasise the positive effect of performance-based financing on service coverage by community health workers in Burundi. Furthermore, other researchers suggest a locally driven financial system to better sustain family planning programmes in the event of a decline in donor-based funding (Igharo, Ananaba, Omotoso, Davis, Kioko & Finkle 2024:7). This shows that policy tools are most useful when they strengthen both service delivery and sustainability.

Across the reviewed literature, the most effective strategies are those that act at multiple levels at once, rather than relying on a single intervention. Education, counselling, male involvement, community dialogue, service integration, task sharing and financing reforms appear to reinforce one another when implemented together. While the international and regional evidence identifies a wide range of effective strategies from intrapersonal education and self-efficacy interventions to interpersonal counselling and male engagement, to community-level outreach, CHW/task sharing models, facility readiness and performance-based financing, translating these strategies to the Bale Eco-region requires a critical review of the institutional and contextual constraints highlighted in this chapter. This study therefore supports the need for locally adapted, multi-level strategies that reflect the realities of married women in the Bale Eco-region.

2.10 SOCIAL ECOLOGICAL FRAMEWORK

The socio-ecological framework is a multi-level conceptualisation of health that includes intrapersonal, interpersonal, organisational, environmental, and public policy factors (Scarneo et al 2019:359). Researchers recognised that the socio-ecological framework helps to understand how a person's behaviour or outcomes are influenced by multiple barriers that may appear at the individual or intrapersonal level, the community-level, and the interpersonal and institutional levels (Sidamo et al 2023:109). The socio-ecological framework guided the review of the literature in this study, enabling the researcher to conceptualise that married women’s behaviour related to modern contraceptive method use and unmet needs for contraception are influenced by various barriers or enablers that appear at the intrapersonal, interpersonal, community, institutional and societal levels.

The researcher applied the socio-ecological framework, assuming that multi-level strategies are essential for enhancing modern contraceptive method use by addressing barriers at different socio-ecological levels (Figure 2.1).

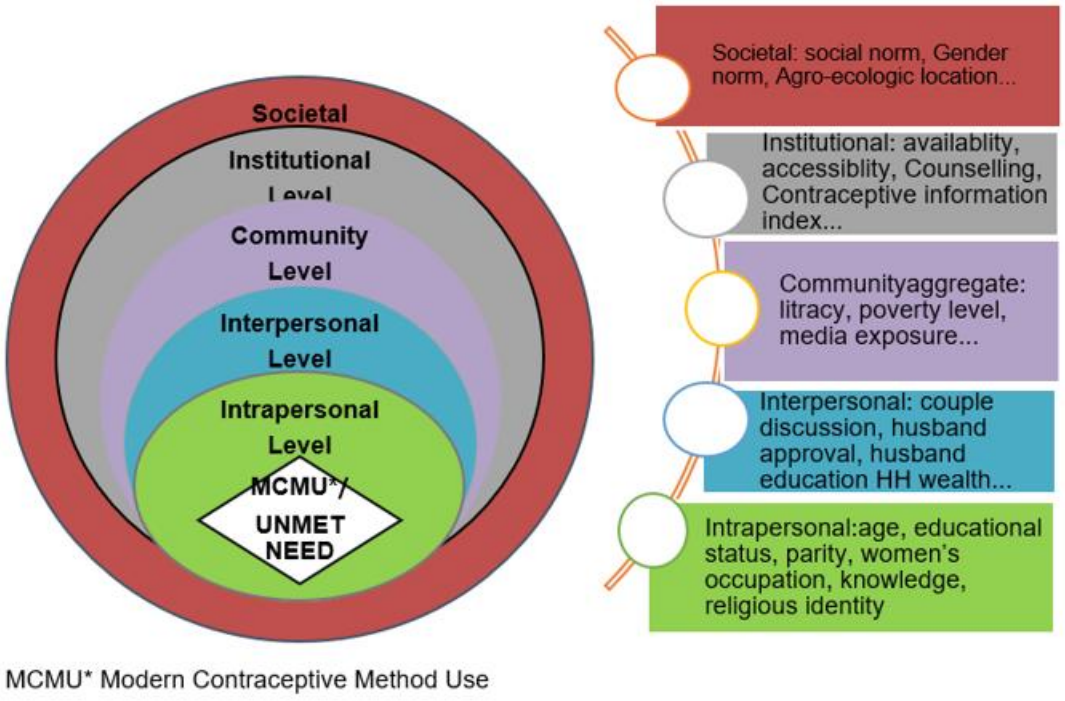


Figure 2.1 Socio-ecological framework adapted for the study (FMoH 2021:12)

2.11 SUMMARY

The literature review for this study, titled “Strategies for Enhancing Modern Contraceptive Use Amongst Married Women in Bale Eco-region, Ethiopia,” is presented in this chapter. It provides a comprehensive narrative literature review that presents research evidence and concepts relevant to the specific objectives of this study.

This chapter of the narrative literature review outlines the researcher's search strategy for identifying and consulting relevant sources on the research topic and objectives. Overview of modern contraceptive method use, Importance of Modern contraceptive methods, prevalence of modern contraceptive method use from the global and national perspectives, unmet needs for modern contraceptive methods and their measurement. The multi-level barriers to modern contraceptive use, in line with a socio-ecological model approach; factors associated with modern contraceptive methods; factors associated with

unmet needs for modern contraceptive methods; strategies for improved modern contraceptive method use; and the use of the socio-ecological framework in the study.

The literature review was organised according to the five hierarchical levels of the socio-ecological theoretical framework: intrapersonal, interpersonal, community, institutional, and societal levels (Ajayi et al 2021:218; Mukanga et al 2023:11). By investigating these factors at multiple levels, the researcher aims to provide a thorough understanding of the multilevel barriers and enablers to MCM use, as well as the interrelated factors contributing to unmet needs for MCM. This understanding is crucial for identifying potential areas for intervention to enhance the uptake and consistent use of MCM among married women (FMoH 2021:10; Mankelkl et al 2024:6).

CHAPTER 3

RESEARCH DESIGN AND METHODS

3.1 INTRODUCTION

This chapter delves into the research methodology that guided the research process. Research methodology is defined as the science of investigating how a study is conducted in a scientific way (Mishra & Alok 2022:28). Research methodology involves the overarching strategy and rationale that guide the research process, allowing the researcher to determine appropriate methods and procedures for data collection and analysis (Alharahsheh & Pius 2020:40). In general, a research methodology corresponds to the essential principles of research methods applied in the research process (Firdaus, Zulfadilla & Caniago 2021:2).

The section below presents the study's paradigmatic orientation, research design, and the specific methods and procedures used in sampling, data collection, and analysis. In addition, it details the strategies used to ensure the validity, reliability, credibility, transferability, dependability, and confirmability of the results, as well as the ethical considerations considered by the researcher of this study.

3.2 SUMMARY OF STUDY PARADIGM

The research paradigm in this study is based on the pragmatic worldview, which uses both qualitative and quantitative methods to have a better understanding of the problem under investigation (Turin, Raihan & Chowdhury 2024:3). The researcher assumed that reality is multiple and context-dependent, claiming the reasons for non-use of MCM are shaped by diverse social, cultural, and geographic factors that vary across communities. This belief supported the additional explanation of the barriers and enablers influencing the use of MCM, as provided by qualitative investigation in this study. The study adopted the constructivist-positive stance, considering knowledge as an entity co-constructed through human experience and interaction with participants, and shaped by the social context (in the qualitative phase) (Tanlaka & Aryal 2025:8), while also valuing the importance of objective measurement and generalisation of the research findings (in the

quantitative phase). This dual stance enabled the researcher to first quantify results using statistical analysis and then provide further explanation of the prominent barriers and enablers of MCM across the different socio-ecological levels.

Having a multi-phase mixed-methods study employing an explanatory sequential design in Phases I and II and extending to Phase III for strategy development enabled it to achieve its objectives. It quantitatively determined the prevalence of MCM use and the unmet needs for modern contraceptive methods and identified the factors statistically associated with MCM use and the unmet needs for MCM. Followed by a qualitative phase, with further explanation of the barriers and enablers to the use of modern contraceptive methods. Furthermore, the research was guided by a commitment to ethical research practice, focusing on respect for participants' privacy and confidentiality, cultural sensitivity, and the ethical use of findings to inform programme interventions that address disparities in the use of modern contraceptives among rural communities in Ethiopia. This approach ensured that the strategies developed are evidence-based and contextually grounded, making them relevant and actionable for stakeholders aiming to improve modern contraceptive use and reproductive health outcomes in affected communities.

3.3 RESEARCH APPROACH

The research approach corresponds to the plan and process for conducting research that covers actions from general hypotheses to specific techniques for gathering, analysing, and interpreting data (Creswell & Creswell 2023:294). This study was grounded in the pragmatic worldview and employed a mixed-methods research approach. The following section introduces the mixed-methods research approach and presents the specific methods used in the approach's implementation sequence.

3.3.1 Mixed-Methods Research (MMR) Approach

Mixed-method research is a research approach that combines quantitative and qualitative approaches based on the purpose of the study and the nature of the research issue to provide a greater understanding of the subject (Taherdoost 2022:55). Adoption of a mixed-methods research approach ensured a comprehensive understanding of the research problem, taking advantage of both quantitative and qualitative approaches (De Oliveira 2020:2; Sharma et al 2023:5). Şahin and Öztürk (2022:308) state that deeper

and richer answers can be found to a research problem in the case of using a mixed-method research approach, compared to the case of using either of the quantitative or qualitative approaches alone. In this study, the researcher used a mixed-methods approach to integrate and synthesise quantitative and qualitative findings to inform the development of strategies to improve married women's use of MCM in the Bale Eco-region.

3.3.2 Study phases and corresponding research approaches

The study used a multi-phase mixed-methods research approach, employing an explanatory sequential design in Phases I and II, followed by a strategy development phase (Phase III). In Phase I, this study employed a quantitative research approach, conducting a household survey and analysing the data. This was followed by Phase II, in which a qualitative research approach, using focus group discussions and key informant interviews (KIIs), was employed to collect and analyse qualitative data, applying an explanatory sequential mixed-methods design. The study included an additional Phase III devoted to development strategies, aligned with the study's overall aim. The research approach in each of these study phases is outlined in the following sections.

3.3.2.1 Phase I: Quantitative research approach

Phase I of this study corresponds to the quantitative approach applied in this multi-phase mixed-methods research. The quantitative research approach in Phase I of this research aimed to determine the overall proportion of married women using modern contraceptive methods and quantify the magnitude of the unmet need for modern contraception among married women in the Bale Eco-region. The study used quantitative data collected through a house-to-house survey to address the following specific research objectives.

- To determine the prevalence of modern contraceptive method use amongst married women in the Bale Eco-region, Ethiopia.
- To determine the prevalence of unmet needs for modern contraceptive methods amongst married women in the Bale Eco-region, Ethiopia.
- To identify factors associated with unmet needs for modern contraceptive methods among married women in the Bale Eco-region, Ethiopia.

3.3.2.2 Phase II: Qualitative research approach

Taherdoost (2022:54) characterises a qualitative research approach as one that entails the collection of primary, first-hand textual data, which are subsequently subjected to interpretive forms of analysis with an exploratory orientation. This orientation seeks to generate novel insights, refine or extend conceptual understandings, and contribute to the development of new theoretical frameworks. Phase II of the present study corresponds to the qualitative component within the overarching mixed-methods design. It is specifically designed to produce an in-depth understanding of the multi-level determinants operating across the different socio-ecological strata that either impede or promote the utilisation of modern contraceptive methods (MCM) among married women residing in the Bale Eco-region.

This phase included evidence from the following specific objectives:

- To describe the barriers to the use of modern contraceptive methods amongst married women in the Bale Eco-region, Ethiopia.
- To explain the enablers that promote the use of modern contraceptive methods amongst married women in the Bale Eco-region, Ethiopia.

3.3.2.3 Phase III: Strategies development phase

The final phase of this multi-phase mixed-methods study aligns with the overarching research objective: the development of strategies to enhance the utilisation of modern contraceptive methods (MCM) among married women in the Bale Eco-region, Ethiopia. In this phase, the researcher draws on empirical evidence from the quantitative and qualitative components of Phases I and II of the mixed-methods design, integrating these findings to inform the development of contextually appropriate, evidence-based intervention strategies.

3.4 RESEARCH DESIGN

According to Creswell and Creswell (2023:295). Research design refers to the procedure for conducting research within the broader methodological approaches of quantitative, qualitative, and mixed-methods research. A research design encompasses a series of

methods and procedures employed to collect and analyse data on specific variables outlined in a given study (Aggarwal & Ranganathan 2019:1). Within mixed-methods research, Creswell and Creswell (2023:44) identify core designs such as convergent, explanatory sequential, and exploratory sequential approaches. In certain contexts, however, these core designs may be extended into more complex mixed-methods frameworks to address research purposes that require additional phases or integration. In line with this concept, the present study adopted a multi-phase mixed-methods approach, employing an explanatory sequential design in Phases I and II as the core design, with Phase III extending to strategy development. This design enabled the researcher to fulfil the study's purpose by generating context-specific strategies in Phase III, informed by the integrated quantitative and qualitative findings from the earlier phases.

3.4.1 Explanatory sequential mixed-methods research design

As presented in Creswell and Creswell (2023:285), explain, the explanatory sequential mixed-methods design is one of the core designs within mixed-methods research. It is adopted when researchers seek to explain initial quantitative results through a follow-up qualitative phase, thereby connecting and integrating the two data sets. In its classic form, the explanatory sequential design applies two phases: a quantitative phase to generate baseline results, followed by a qualitative phase to provide deeper explanation and contextual understanding of those results. In this design, quantitative data collection and analysis are conducted first, enabling the identification of issues that require further exploration through a follow-up qualitative inquiry (Sharma et al 2023:3; Skamagki, King, Carpenter & Wåhlin 2022:1). However, to provide a more complete and accurate understanding of a research question in a complex investigation, mixed-methods studies could extend further with an additional phase (Sharma et al 2023:7). In line with this typology, the present study adopted a multi-phase mixed-methods study employing an explanatory sequential design in Phases I and II, followed by Phase III dedicated to the development of strategies.

3.4.2 Multi-phase mixed-methods study employing an explanatory sequential design

The rationale for adopting a multi-phase mixed-methods design in this study lies in the complexity of the research problem and the need for a comprehensive understanding of the phenomenon under investigation (Sharma et al 2023:3). The explanatory sequential mixed-methods design, as one of the core mixed-methods approaches, provides the opportunity to generate preliminary quantitative findings (Phase I) and then deepen their interpretation through qualitative inquiry (Phase II), thereby enhancing the clarity and contextual richness of the results (Şahin & Öztürk 2022:301). Classic explanatory sequential designs typically involve two phases (quantitative followed by qualitative), in which the first phase measures and describes patterns, and the second explains and contextualises them. However, studies that extend beyond these two phases, incorporating additional stages of integration or application, are considered multi-phase mixed-methods designs (Sharma et al 2023:3).

In this study, a multi-phase mixed-methods approach, employing an explanatory sequential design in Phases I and II and extending to Phase III for the strategy development was selected for four key reasons: (1) it enables a holistic understanding of a complex socio-ecological phenomenon before developing strategies to enhance modern contraceptive method (MCM) use, (2) it addresses research objectives requiring both quantitative and qualitative data, (3) it follows a logical epistemological sequence from description to explanation to intervention, and (4) it directly supports the study's ultimate aim of developing evidence based, context-specific, multi-level strategies to improve MCM uptake among married women in the Bale Eco region.

Accordingly, the use of this study design enabled the researcher to provide a clear explanation of the socio-ecological levels of barriers to MCM use and the factors that promote MCM use among married women, facilitating the identification of effective strategies tailored to each level of the socio-ecological model. Therefore, by combining quantitative and qualitative data, the researcher gained a more holistic view of the problem and clear insight, enabling him to identify targeted interventions to enhance MCM use in the study area.

In general, the rationales underpinning the application of this study design can be summarised as complementarity, development, initiation, explanation, and triangulation, as presented below.

Complementarity: The use of quantitative and qualitative strands in a study is intended to benefit from the values each approach holds, with added value by combining both approaches that complement each other (Dawadi, Shrestha & Giri 2021:27). In this study, quantitative data were collected using a structured interview schedule to quantitatively determine the prevalence of MCM use and unmet needs for contraceptive methods and the factors statistically associated with MCM use and unmet needs for modern contraceptive methods. The qualitative data from FGDs and KIIs provided insights into the barriers and enablers to MCM in the study population. Combining these two strands, the study provided a more comprehensive understanding of the barriers and factors influencing MCM use and unmet needs among married women in the Bale Eco-region.

Development: This refers to the achievement of an effective and refined conclusion as the results of one method inform or shape the other method (Dawadi et al 2021:28). In this study, the iterative process of collecting and analysing data, where the quantitative findings from Phase I informed the design of the data collection tools (FGD and KII guides) for the subsequent qualitative phase (Phase II), allows for a deeper understanding of the research topic by exploring it from different perspectives.

Initiation: Analysis of the initial approach informs the incorporation of new concepts or constructs into the subsequent approach's data collection and analysis. In an explanatory sequential mixed-methods design, the researcher may come across an issue that needs to be investigated more deeply using qualitative data and incorporated in the qualitative phase (Şahin & Öztürk 2022:305). For example, in this research, the preliminary quantitative data analysis identified factors that influence MCM use across the various levels of the Socio-Ecological Model; therefore, during the second phase (Phase II), an in-depth analysis of the barriers to MCM use was made across the intrapersonal level, interpersonal level, institutional, community and societal level.

Expansion: Involves using qualitative data to provide context and meaning to the quantitative findings, enhancing the overall interpretation of the results (Dawadi et al 2021:27). For example, in this research, having a sequentially collected and analysed

quantitative and qualitative data set gave a space for the researcher to provide explanations of the factors that promote MCM use through connecting the two data sets using a side-by-side joint display technique, guiding the development of strategies tailored to the study area context (Annexure 14).

Triangulation: Is a justification that enables the researcher to verify and validate findings obtained through one of the approaches by comparing them with the findings obtained from the other data sources or approaches (Dawadi et al 2021:28). The current study triangulated the quantitative and qualitative findings by integrating them using the joint display technique.

3.5 STUDY CONTEXT AND SETTINGS

3.5.1 Study context

The diverse socio-cultural, economic, and agro-ecological contexts in the Bale Eco-region (BER) provide a unique setting for studying MCM use among married women in Ethiopia. The population in the Bale Eco-region is predominantly rural with limited access to healthcare facilities, family planning service utilisation, and poor reproductive health status, and prevalent harmful traditional practices such as early marriage (Belda, Haile, Melku & Tololu 2017:194; Teklu, Kebede, Mogessie & Asnake 2016:3; Wudneh, Dendir, Nigatu & Gonie 2017:1).

The BER encompasses 330 kebeles, administratively organised into 16 districts, across three major ecological strata: highland, midland, and lowland. The highland area accounts for 41% of the kebeles in BER, with moist rainforests and subsistence-farming livelihoods. While 38% of the kebeles are in the midland stratum, which relies on mixed farming and livestock rearing. The lowland that covers up to 21% of the kebeles is home to pastoralist communities who are dependent on livestock rearing (Metaksa 2016:10; Gebru, Wang, Kim & Lee 2019:7). Furthermore, the BER is renowned as a global biodiversity hotspot encompassing varied ecosystems from Afroalpine grassland, tropical rainforest, to dry woodland region (Teklu et al 2016:3). Each of these acro-ecologic clusters have varied socio-ecological contexts that shape traditional values among predominantly rural communities. Fertility decisions are often influenced by varied socio-ecological contexts across the diverse agro-ecological landscapes of the BER, which

provides an important ground for understanding modern contraceptive use behaviour among married women. Additionally, geographical disparities in access to health services and recent developments create a dynamic environment that might influence women's reproductive choices in the Bale Eco-region. Figure 3.1 below depicts the location map of the study setting.

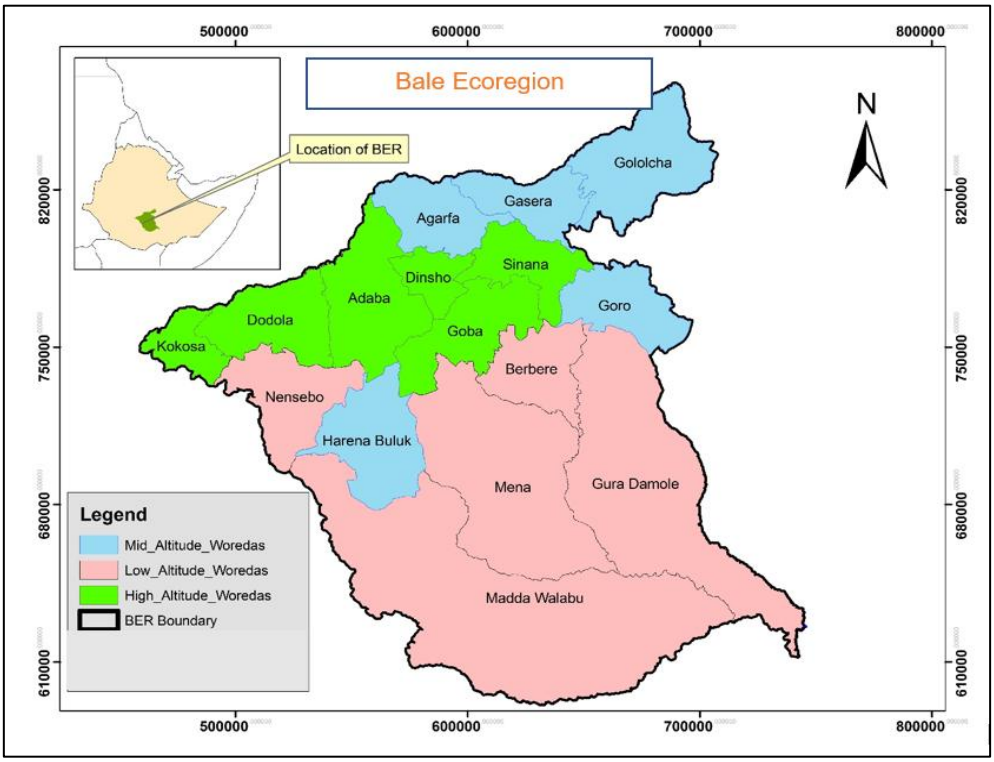


Figure 3.1 Location map of Bale Eco-region

(Source: https://api.phe-ethiopia.org/media/338/ecoregion_newsletter_vol_1.pdf)

3.5.2 Setting for the study

The study was carried out in 33 randomly selected kebeles of the Bale Eco-region. The Bale Eco-region covers 12 districts in the Bale Zone and 4 in the West Arsi Zone, Southeastern Ethiopia. Robe town (the capital town of Bale Zone) and Shashemene town (the capital town of West Arsi Zone) are located 415 km southeast and 284 km south of Addis Ababa (the capital city of Ethiopia), respectively. The Bale Eco-region has an estimated total population of 2,111,483 (1,046,166 male and 1,065,316 female). According to an unpublished situational analysis report, Bale Eco-region has an estimated 602,058 women of reproductive age (15-49 years), 347,290 children under five years and 78,125 pregnant women in the 16 woredas in Bale Eco-region (International

Water Management Institute 2018:7). The study covers both rural kebeles and small urban centres representing the diverse settlement and socio-economic pattern of the community. Table 3.1 below summarises the study area setting.

Table 3.1 Study area and its characteristics

Description	Highland stratum	Midland stratum	Lowland stratum	Total
Number of districts	7	6	3	16
Number of kebeles (clusters)	139	131	57	327
Total population	1,039,154	769,805	302,524	2,111,483
Number of women of reproductive age group (15-49)	365,180	169,930	66,948	602,058
Number of schools (all)	367	313	170	850
Number of health centres	40	30	13	83
Number of health posts	150	129	59	338
Number of hospitals	4	1	2	7
Number of health professionals	534	284	374	1192
Number of health extension workers	405	331	215	951

3.6 RESEARCH METHODS

Research methods include the processes carried out by a researcher involving data collection, analysis, and interpretation while undertaking a study (Creswell & Creswell 2023:296). Mishra and Alok (2022:1) describe research methods as all the techniques and methods which have been used to conduct the research. Specifically, the methods deal with the data collection and analysis techniques to produce and generate knowledge (Alharahsheh & Pius 2020:39). This study used a multi-phase mixed-methods research approach administered sequentially in three phases. The research methods used in each of the three phases of this study are presented below in the order they appear in the study.

3.6.1 Phase I: Quantitative research methods

3.6.1.1 Population for the quantitative phase

In a research undertaking, population refers to the set or group of units on which the findings of the research are applied (Shukla 2020:2). The target population, according to Casteel and Bridier (2021:344), is the particular, conceptually limited set of possible

participants that the researcher may access and that embodies the characteristics of the population of interest. The target population for quantitative data collection during Phase I of this study was all married women who lived in the Bale Eco-region, Southeast Ethiopia. The estimated number of married women in the Bale Eco-region was 365,531 (International Water Management Institute 2018:7).

A study population refers to all people that the researcher intends to make inferences about the research's findings (Creswell & Creswell 2023:296). The study population for the quantitative approach of this study includes all married women of reproductive age (18-49) who live in kebeles, selected through simple random sampling after stratifying the study area into highland, midland, and lowland strata (Figure 3.2).

The quantitative study participants include all married women aged 18 to 49 years (inclusive) who participated in the household survey conducted during the first phase (quantitative) of the investigation.

3.6.1.1.1 Inclusion criteria

The inclusion criteria for participation in the quantitative phase are women who were in marital relationships during the data collection period, women aged between 18 and 49 years, and women who had lived in the selected kebele for at least 6 months before the data collection date.

3.6.1.1.2 Exclusion criteria

The exclusion criteria for the study participation in the quantitative phase include: woman who was not married, divorced or widowed was excluded because family planning service in Ethiopia targets married couple; in line with research ethics for informed consent of a participant a married woman whose age was below 18 years was excluded and also those over 49 years during the data collection period were excluded because of their age exceeded the upper reproductive age limit; a woman who was not volunteer to participate after the data collectors provided her (read to her) the information given in the participant's information sheet (Annexures 4 and 6) and married woman who was seriously ill or unable to respond due to physical or mental illness during the data collection period. Due to seasonal mobility in the pastoralist context of the lowland areas, women sampled who

were not accessible at their households after two additional visits by the data collectors were also excluded from the final analysis.

3.6.1.2 Sample size determination for the quantitative study participants

This study adopted the sample size determination formula used by the Demographic and Health Surveys (DHS), which accounts for the trade-off between desired survey precision and available budget. Aliaga and Ren (2006:1) indicate that the sample size determined for two-stage cluster sampling should meet the need for both cost control and survey precision, or within the tolerable limits of relative precision loss.

The standard demographic and health surveys and related studies determine the precision of a variable of interest as measured by the relative standard error (RSE), that is, the ratio of the Standard Error (SE) to the estimated proportion of modern contraceptive use by the population (ICF International 2012:7). The optimum sample size for the quantitative data collection of this study was determined by the formula below:

$$n = Deft^2 * \frac{\left(\frac{1}{p} - 1\right)}{\propto^2} /(R_i * R_h * d)$$

Where:
n=is the sample size
Deft=is the design effect. A design effect value “2.0” was used in this study because of the inherent sampling variability in two-stage cluster-based sampling designs relative to simple random sampling. Cluster sampling was employed here (stratified by highland, midland, and lowland; clusters selected; and then households selected from each cluster). Within-cluster homogeneity reduces the effective information per sampled individual, thereby inflating the variance of the estimated proportions. Therefore, using Deft = 2.0 ensures that the computed sample size is sufficient to maintain the desired relative standard error (RSE = 0.11) for the proportion of modern contraceptive use while controlling survey costs.

p=is the proportion of modern contraceptive use in the population (p=0.281 was used from a previous survey) (CSA [Ethiopia] & ICF 2016:114).

α=is the desired Relative Standard Error (RSE taken as the ratio of the standard error of 0.03 to the estimated proportion of modern contraceptive use (p=0.281), which gives an RSE of 0.11.

Ri=individual response rate of (0.95).

Rh=household response rate of (0.90).

d=is the number of eligible individuals per household (d=1), assuming there is one married woman of reproductive age in each household.

Considering the proportions of individual and household non-response rates, the calculated sample size was (n=989) married women aged 18-49.

3.6.1.3 Sampling procedure for the quantitative study participants

The study employed a two-stage stratified cluster sampling technique, which is appropriate for large-scale household surveys in geographically dispersed and resource-limited settings such as the Bale Eco-region (BER). Before sampling commenced, the total of 330 kebeles in the BER were stratified into three agro-ecological strata: highland, midland, and lowland (see the schematic presentation of the sampling procedure in Figure 3.2 below). Stratification by predominant altitude (elevation in meters above sea level) was found to be relevant for the Bale Eco-region context because differences in settlement patterns, infrastructure, health facility availability, cultural norms, and socio-economic conditions influence uptake of modern contraception and access to family planning services.

In the first stage of sampling, kebeles (equivalent to clusters or primary sampling units) were selected from each stratum using simple random sampling (lottery method). The number of kebeles to be selected from each stratum was proportionally allocated according to the size of the stratum. Accordingly, 14 kebeles were selected from the highland stratum, 12 from the midland stratum, and 7 from the lowland stratum, yielding

a total of 33 sampled clusters. Clustering at the kebele level was appropriate for the Bale Eco-region because (1) kebeles represent naturally defined administrative units with clearly enumerated household lists, (2) it significantly reduces fieldwork costs and logistical challenges by concentrating sampling efforts in selected geographic areas rather than spreading them across the entire region, and (3) it aligns with the sampling design used by the Ethiopian Demographic and Health Survey (EDHS), which facilitates comparability with national estimates.

In the second stage, households within each selected kebele were sampled using systematic random sampling. From each of the 33 sampled kebeles, households were systematically selected until the required number of married women of reproductive age (18-49 years) was reached. Approximately 30 women were selected from each kebele, yielding a total of 989 sampled study participants for the quantitative house-to-house survey (420 from the highland stratum, 359 from the midland stratum, and 210 from the lowland stratum).

To minimise clustering bias, this study (1) stratified by agro-ecology to capture ecological diversity and ensure representation of all zones, (2) used simple random sampling for kebele selection within each stratum, and (3) applied a design effect of 2.0 to inflate the sample size and maintain the desired precision. Residual clustering bias is unlikely to significantly affect the findings given these safeguards and the robust sampling design.

Figure 3.2 below illustrates the schematic of the sampling procedure used to select study participants for the quantitative survey.

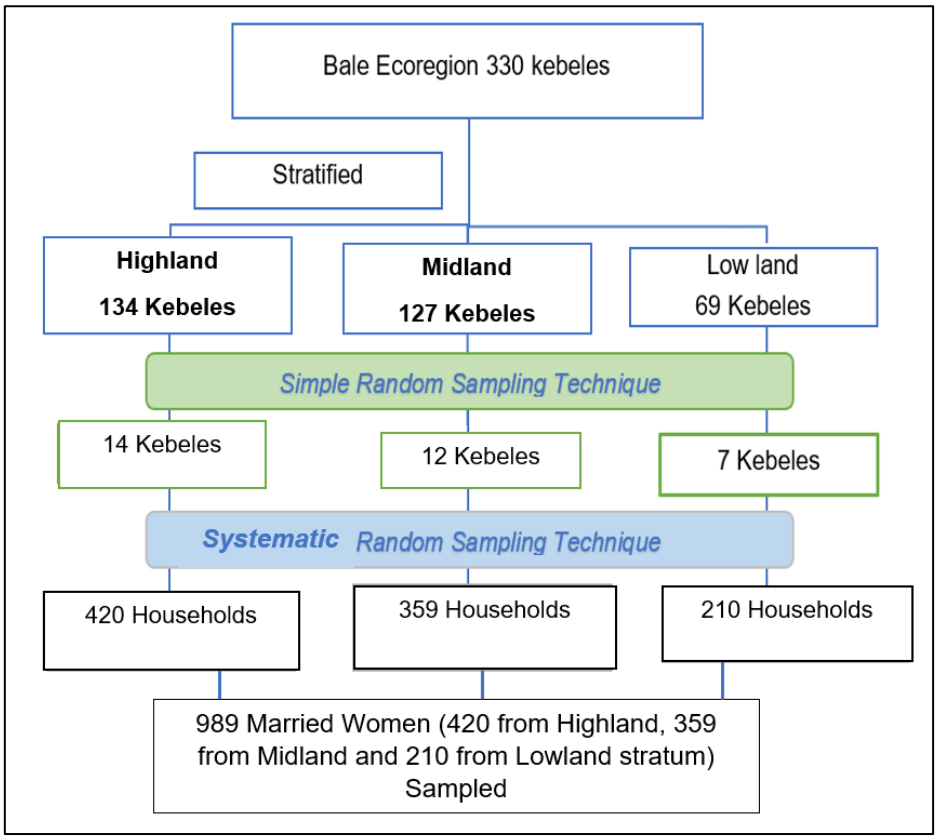


Figure 3.2 Schematic presentation of the sampling procedure

3.6.1.4 Data collection procedure during the quantitative phase

The quantitative data were collected using a house-to-house survey technique. Six enumerators and two supervisors with experience in research data collection were recruited to collect quantitative data using a structured schedule. The researcher provided a three-day training to the enumerators and the supervisors in Goba town. The training focused on the research process, including study objectives, study population, sampling procedure, inclusion/exclusion criteria, research ethics (participant information, informed consent), contents of the data collection instrument and how to ask each component, and data management techniques. After attending the training, the enumerators and supervisors signed a confidentiality agreement. For logistical and management purposes, the researcher grouped the research team into two research groups, each with one supervisor and three enumerators. The members of each research group (a supervisor and 3 enumerators) were to travel together to the sampled kebeles and conduct the quantitative data collection through a house-to-house survey held from June 10th to July 5th, 2021. The researcher paid a wage to the research team to cover their daily subsistence allowance and arranged a vehicle to transport each research group to the

sampled kebele and the nearest towns, where they stayed overnight during the data collection period. The researcher also bought airtime for the enumerators' and supervisors' mobile phones to improve communication during quantitative data collection.

Once the research team reached the sampled kebele, they contacted each kebele administrator, provided letters of cooperation, and obtained permission to conduct data collection. In each kebele, the supervisors obtained the list of households and blocks ("*Garees*") in which they are located. Then the list of households for each sampled kebele was used as a sampling frame, and the supervisor, together with the enumerators, sampled 29 to 30 households using a systematic random sampling technique. A sampling interval (K_i) is taken as the ratio of the total number of households in the kebele (N_i) to the required sample size of the kebele (n_i). The required sample size (ni) was 30 in 32 kebeles and 29 in one kebele. A lottery method was used to identify the household where the selection process starts among the first (K_{1-x}), then systematically selected and listed the sampled households in the kebele. The enumerators received the identification and block *(Garee)* where the sampled household is located and visited the households with the help of the local guide.

In each kebele, a local guide was recruited and paid to assist with identifying sampled households when enumerators encountered difficulties. The enumerators administered the structured schedule face-to-face by identifying a married woman of reproductive age living in the sampled household who met the inclusion criteria. The enumerators applied all COVID-19 prevention protocols described in Section 3.7.5, which helped prevent fear and transmission risk, allowing the researcher to collect data as planned without affecting the participation rates of the study participants. The researcher also travelled to the sampled kebeles with the research group and supervised the sampling and quantitative data collection process, supported the enumerators daily and checked and received the completed tools daily during the fieldwork.

3.6.1.5 Development and testing of the quantitative data collection instruments

Quantitative data collection (Phase I) was conducted using a structured schedule. In a structured schedule, the researcher develops questions with predefined response options for each, and an enumerator (data collector) administers them to study participants after obtaining their informed consent. This method is often preferred when the literacy level of

the study participants is low. In this study, the researcher developed a structured *schedule* (written list of questions and response categories) based on the specific objectives (Abhimanyu & Singh 2025:1260; Archana, Sushma & Veni 2025:143). The researcher reviewed previously published research articles and the Demographic and Health Survey (DHS) data collection tool to customise and adopt the contents of the data collection instrument (ICF International 2011:9). The quantitative data collection tool was first developed in English language and translated into *Afaan Oromo* (local language) by a language translator and the local language version was translated back to English version by another translator to check the consistency of the contents (Annexures 8 and 9).

The structured interview schedule was organised along the socio-ecological levels, including intrapersonal characteristics: socio-demographic characteristics, fertility and reproductive characteristics, knowledge of modern contraception, and utilisation of modern contraception. Interpersonal characteristics: husband and household characteristics, including husband's age, husband's education, polygamous marriage, family size, source of income, household assets, spousal communication, perception of contraceptive use approval by partner, communications with peers or friends and participation of the women in community-based groups or cooperatives. Institutional level information: accessibility of health facilities that provide different modern contraceptive methods, household visits by family planning service providers, family planning counselling, owning community health insurance, and exposure to FP education programmes.

Societal level information: including women's decision-making autonomy on making large purchases (economic authority), the decision on using health services (personal decision-making authority), and the decision to visit relatives and family members (mobility decision-making authority); gender norm related to husband's justification for wife beating on five hypothetical scenarios including (1) for going out without telling him, (2) for arguing with him, (3) for neglecting to care the children, (4) for refusing to have sex with him, and (5) she does not cook food properly; contraceptive social norm including the perceived level of modern contraceptive use by women in the society, perception on religious leaders support to contraceptive use, perception on the level of support to modern contraceptive use by social groups and close family members, and perception on sanctions towards women who use modern contraceptive methods and information on geographical location of respondents residence.

The local-language version of the tool was pilot-tested by involving 45 married women from three kebeles (one kebele from each stratum) who were not included in the actual data collection. After piloting the quantitative data collection tool, modifications were made to the question sequence, including rewriting or restating some questions to improve clarity and adjusting each respondent's participation duration. The pretest results indicated that the tool was clear and acceptable, with an average completion time of 60 minutes. Item-level review showed that 92% of questions were correctly understood, while 8% required minor clarification or rephrasing, which were addressed before main data collection.

Content validity of the data collection tool was established through expert review by two researchers in reproductive health and survey methodology. Construct validity was examined using exploratory factor analysis (EFA) for composite variables created by summing or averaging scores from related items. Modern contraceptive knowledge was measured using 17 items (Cronbach's $\alpha = 0.850$); decision-making autonomy using 4 items ($\alpha = 0.795$); contraceptive social norms using 5 items ($\alpha = 0.819$); and attitude towards wife beating using 5 items ($\alpha = 0.916$). All scales demonstrated acceptable internal consistency, exceeding the recommended threshold of 0.70.

Variables related to the immediate social environment (relationship, cluster and community), as well as the broader societal environment (such as social and cultural norms and institutions) in which the immediate community (cluster) level factors are embedded to influence individuals and their behaviour, were identified by aggregating the intrapersonal and interpersonal level variables to each cluster level (Ahinkorah et al 2021:10; Mukanga et al 2023:11; Sidamo et al 2023:103). As the current study conceptualises its views within the socio-ecological framework, the community, institutional, and societal-level variables were derived by aggregating intrapersonal and interpersonal-level data at the PSU (kebele) level.

3.6.1.6 Quantitative data analysis

Quantitative research approaches are essential in various fields, as they use numerical data and statistics to study trends, patterns, and relationships. These approaches enable researchers to measure and quantify variables, allowing for precise and objective analysis

(Ramlo 2022:226; Taherdoost 2022:53). In this research, the quantitative data analysis began by manually cleaning the completed tools. The quantitative data were entered into the IBM Statistical Package for the Social Sciences (SPSS) software, version 25, for analysis. The dataset was checked for missing values during data collection and for coding errors, and further cleaning and preliminary corrections were made by cross-checking against the hard copy of the tool. Five cases with major missing data were excluded from the analysis.

A descriptive analysis was conducted, and measures of central tendency were computed. Then, a multi-level logistic regression model with a random intercept was used to identify factors associated with the dependent variables ($P<0.05$). Multi-level regression models are the recommended method of analysis when the data have a hierarchical structure, where variables at a lower level are nested within clusters at the next higher level, which themselves may be nested within larger super-clusters in the dataset (Asosega, Adebanji, Aidoo & Owusu-dabo 2024:7). Therefore, multilevel mixed-effects logistic regression was used to estimate the fixed effects of exposure variables at Level 1 (individual level) and Level 2 (kebele/cluster-level aggregate variables), and the random effects at Level 2 (kebele/cluster level). Hence, fixed effects of factors at the intrapersonal, interpersonal, institutional, community, and societal levels were identified and presented as adjusted odds ratios (AORs) with 95% confidence intervals (CIs). The intraclass correlation coefficient (ICC) and median odds ratio (MOR) were used to assess random effects (variability in the variance) at level 2 (kebele/cluster level).

The analysis of the quantitative data enabled the study to determine the prevalence of modern contraceptive use among married women, the prevalence of unmet needs for MCM in the study area, and to identify the multi-level factors contributing to unmet needs for modern contraceptive methods among married women in the Bale Eco-region. The quantitative data analysis enabled the researcher to generalise the findings from the sampled study participants to all married women living in the Bale Eco-region. By performing quantitative data analysis in the first phase, the researcher identified findings that require further explanation and investigation to gain a clear understanding of MCM use and unmet needs for MCM. Those factors requiring in-depth qualitative exploration were included in the qualitative data collection tools (FGD and KII guides), enabling the researcher to provide further explanation and a better understanding of the barriers and enablers to MCM in the study area.

3.6.2 Phase II: Qualitative methods

3.6.2.1 Study population for the qualitative approach

The qualitative phase used focus group discussions amongst married women and a key informant interview amongst health extension workers. Participants in the FGD were married women aged 18-49 years who lived in a randomly selected kebele in the Bale Eco-region. The KII participants were health extension workers who provided family planning services in a selected kebele in the Bale Eco-region.

3.6.2.1.1 Inclusion criteria for FGD participants

The inclusion criteria for the first category of FGD participants were: women in marital relationships during the data collection period; women aged 18 to 49 years; women known to be MCM users; and women who had lived in the selected kebele for at least 6 months. The inclusion criteria for the second category of FGD participants were the same as those for the first category, except that the women were known not to use an MCM during the data collection period.

3.6.2.1.2 Inclusion criteria for KII participants

The inclusion criteria for the key informant interview include: a health extension worker, age >=18 years during the data collection period, and a HEW who worked in the selected kebele for at least 1 year.

3.6.2.1.3 Exclusion criteria for FGD participants

Unmarried woman, a woman whose age was below 18 years or over 49 years; woman who did not want to disclose her MCM use or non-use status, woman who did not volunteer to participate after the data collectors provided her (read to her) the information given in the participant's information sheet (Annexures 4 and 6) and married woman who was seriously ill or unable to respond due to physical or mental illness during the data collection were excluded from participating in the FGDs.

3.6.2.1.4 Exclusion criteria for the KII

A health extension worker who worked in the selected kebele for less than one year was excluded from participating in the key informant individual interview.

3.6.2.2 Sampling methods for qualitative participants

To select married women for the FGDs, kebeles were stratified by predominant agroecology into highland, midland, and lowland strata. Then, a total of three kebeles (one from each stratum) were purposely selected. In each of the selected kebeles, 6 to 8 married women who were using MCM and another 6 to 8 married women who were not using MCM were identified and purposely selected to participate in FGDs among MCM users and FGDs among MCM non-users, respectively. Similarly, HEWs who participated in the individual KIIs were purposely selected from six kebeles (two kebeles from the highland stratum, two kebeles from the midland stratum and another two kebeles from the lowland stratum).

3.6.2.3 Sample size determination for the qualitative data collection

3.6.2.3.1 Sample size of the FGD participants

There are two categories of FGD participants in this study. The first FGD category comprised married women who were currently using MCM during the data collection period; the second FGD category comprised those who were not. The selection of FGD participants and the number of FGDs among married women were allocated across the three strata to ensure representation of perspectives within each agro-ecological stratum. The FGD participants were selected purposively based on their MCM use status. The number of discussants in each FGD ranged from 6 to 8.

3.6.2.3.2 Sample size of the key informant interview participants

Individual key informant interviews were conducted in the three strata (highland, midland and lowland) to collect qualitative data from HEWs who provide family planning services in the study area. Individual KIIs were conducted with HEWs who provide FP services in six purposively selected kebeles (2 in the highland, 2 in the midland, and 2 in the lowland

stratum). The number of KII participants was guided by information saturation, determined analytically at the point at which no new codes emerged during the iterative coding of KIIs across the three strata.

3.6.2.4 Qualitative data collection procedure

3.6.2.4.1 Focus group discussions

The FGDs were carried out among two categories of participants (homogeneous groups based on their current contraceptive use) separately. One homogeneous category was married women who used MCM, and the other was married women who did not. The FGD was facilitated by the researcher and a female research assistant whom the researcher recruited and trained. The female research assistant was trained in the research objectives, data collection tools, moderation technique, research ethics, informed consent, note-taking, audio recording, and data quality management. After the training, the female research assistant also signed a confidentiality agreement form. To enable the discussants to participate freely, the female research assistant moderated the FGDs with married women. Before starting the discussion, the research assistant arranged a safe space and invited the FGD participants to take their seats, self-introduce, explain the discussion process, read the participants' information sheets (Annexures 4 and 6), and obtain informed consent from each participant. The researcher assisted the discussion by taking notes and audio-recording the conversations in each FGD.

3.6.2.4.2 Key informant interviews

The qualitative data using KIIs were collected in the second phase. The female research assistant and the researcher conducted individual key informant interviews with HEWs in six purposively selected kebeles (2 per stratum). After selecting the HEW who participated in the KII, the interviewers provided the participant information sheet for the HEW to read and understand the research and the data collection (Annexures 4 and 6). Once the HEWs read through the participant information sheet, they were encouraged to ask questions or request further explanations if needed. The interviewers received written informed consent from the HEWs who participated in the KIIs. The interviews were audio-recorded by the researcher after getting informed consent from the participants.

3.6.2.5 Qualitative data collection instruments

3.6.2.5.1 Focus group discussion guide

The researcher developed a focus group discussion guide (Annexures 10 and 11). In line with the principles of an explanatory sequential mixed-methods design, the FGD guide was updated after receiving preliminary quantitative findings. Immediately after the quantitative data analysis, the researcher identified the findings (multi-level barriers and enablers of MCM use) that required further explanation through a qualitative approach.

The discussion guide incorporated those findings that demanded an in-depth explanation for a better understanding of the phenomenon related to modern contraceptive use and reasons for the unmet need for modern contraceptive methods. The FGD guide was first developed in English and translated into *Afaan Oromo* (local language) by a language translator (Annexures 10 and 11). The translated discussion guide was pretested by conducting one FGD (among married women) in a kebele that was not included in the actual data collection, and some modifications were made to the tool based on impressions identified during the pretest.

3.6.2.5.2 Key informant interview guide

The researcher developed a semi-structured key informant interview guide in English and had it translated into Afaan Oromo (the local language) by a language translator for individual KII interviews with HEWs (Annexures 12 and 13). The contents of the key informant interview guide include information on the type of FP service, availability, accessibility, method mix, number of providers, skills to provide long-acting methods, training, opinions on the level of utilisation, barriers, enablers, strategies to improve FP use, reasons for unmet needs and opinions on potential strategies to improve MCM use and to meet the contraceptive needs of married women.

3.6.2.6 Qualitative data analysis

The qualitative data collection and analysis in an explanatory sequential mixed-methods design is performed in the second phase, used to elaborate and extend understanding of the phenomenon under investigation (Bazeley 2018:10). Audio-recorded FGDs and KIIs

were transcribed verbatim and translated into English for qualitative data analysis. A thematic data analysis technique guided by Tesch's eight steps was applied (Creswell & Creswell 2023:240). A hybrid inductive coding and deductive framing approach was used in the coding process (Kaur, Abu-Qamar, Rashidi, McKay & Saunders 2025:3). Topics, codes, and sub-themes were inductively generated from the data, while a deductive approach, using the lens of the socio-ecological model, was integrated during the interpretation and presentation of the qualitative findings.

Tesch's eight-step approach to qualitative data analysis was followed. This process involved: (1) reading all the interview transcripts carefully to gain an overall understanding of the data while making notes of initial ideas and impressions; (2) selecting one particularly interesting interview, examining it in detail, asking, "What is this about?", considering the underlying meaning, and recording thoughts in the margins; (3) repeating this process for several interviews and compiling a list of all topics, with similar topics grouped together; (4) returning to the data, assigning abbreviated codes to the identified topics, and writing the relevant code next to the appropriate text segment (quotation), while using the preliminary coding scheme to identify any emerging categories or codes; (5) identifying the most descriptive wording for each topic, organising the topics into categories, and considering ways to reduce the number of categories by grouping related topics into broader themes; (6) examining the relationships between categories and illustrating their interconnections; (7) making final decisions on the abbreviations assigned to each category and alphabetising the codes; and (8) assembling all data belonging to each category in one place, conducting a preliminary analysis, and recoding the data where necessary (Creswell & Creswell 2023:240).

3.6.2.7 Integration of quantitative and qualitative data

The integration of data in mixed-method research can take several forms, where the findings from both the quantitative and qualitative data are integrated and synthesised to provide a more holistic understanding of the research problem (Sharma et al 2023:3). The visual joint display technique is often used by several studies to provide an overall interpretation of findings from both quantitative and qualitative components of a mixed-method study (Haynes-Brown & Fetters 2021:4). This technique provides a visual means to both integrate and represent mixed-method results to generate new inferences.

In this study, the researcher integrated and interpreted the two data sets, consistent with the nature of explanatory sequential mixed-methods research, which sequentially gathers, analyses, and presents quantitative and qualitative data. The data integration in this research occurred at multiple points: (1) during the analysis phase, where qualitative findings were used to explain and contextualise the quantitative multi-level regression results; and (2) during the discussion and conclusion sections, where the two data sets were systematically compared and synthesised using a side-by-side joint display.

Qualitative findings were primarily used to explain the quantitative results post-hoc rather than to refine the multi-level model by adding new variables. This approach allowed the researcher to gain a comprehensive understanding of the research problem by providing additional qualitative explanations of the barriers and enablers of MCM use among married women. The integration of these two data sets provided a more nuanced and holistic discussion and interpretation, improving the validity and reliability of the research findings.

The final integrated interpretation (meta-inference) was generated during the discussion and interpretation stage by synthesising the quantitative multi-level regression results with the qualitative thematic findings. This meta-inference represents the interpretation that emerges from integrating both data sets, providing a more complete understanding than either data set could alone. The two data sets were integrated and presented using a side-by-side joint display technique that systematically organised and presented findings at the individual, interpersonal, institutional, community, and societal levels of the socio-ecological framework (Annexure 14). The integrated findings were further interpreted in the discussion and conclusion sections of the research report.

3.6.3 Phase III: Strategies development

This study used a multi-phase mixed-methods approach, employing an explanatory sequential design in Phases I and II and extending to Phase III for strategy development. In Phase III, evidence-based multi-level strategies were developed for improving modern contraceptive methods use among married women in the Bale Eco-region, Ethiopia. The strategy development phase was guided by a systematic, evidence-based process to derive multi-level strategies from the integrated findings of Phases I and II. In step 1, barrier encoding was undertaken by converting the main quantitative findings from Phase

I into a structured set of clearly defined barriers to the target intervention. In step 2, barrier contextualisation was performed using the qualitative findings from Phase II to interpret, refine, and situate the identified barriers within the actual context and lived experiences of the study population in the Bale Eco-region. In step 3, enabler leveraging was performed by identifying and examining the promotive factors synthesised from both phases that can counteract barriers or strengthen implementation possibilities. In step 4, strategy formulation was performed by synthesising the barriers, contextual explanations, and enablers into practical strategies aligned with the five levels of the socio-ecological model, namely the individual, interpersonal, community, institutional and policy levels. In step 5, strategy prioritisation and operationalisation were undertaken by applying predefined criteria to rank the proposed strategies and define their implementation requirements, including stakeholders, time frame, and indicative resource implications.

The proposed strategies were validated by senior experts from the Oromia regional health bureau and local health departments at the zonal level. Finally, the researcher further structured and systematically organised the proposed strategies across four strategic pillars and nine strategic objectives with clear descriptions, implementation outlines, and monitoring plans. The application of these structured steps in the strategy development process ensured that the proposed strategies were grounded in empirical evidence, sensitive to the local context, and suitable for translation into practice.

3.7 ETHICAL CONSIDERATIONS RELATED TO DATA COLLECTION, ANALYSIS AND REPORTING

Research ethics corresponds to a set of guiding principles that shape the conduct of research (Miteu 2024:2395). The ethical considerations for data collection, analysis, and report writing in the current research are presented below.

3.7.1 Permission from institutions

The ethical clearance certificate to undertake the study was obtained from the Higher Degrees Committee of the Department of Health Studies, UNISA (Annexure 1). A letter of support from the Unisa Regional Learning Centre to the Oromia Regional Health Bureau, requesting cooperation in the research study, was provided (Annexure 2). Further permission was requested, and cooperation letters were obtained from the Health

Bureau of the Oromia Regional State and the Bale and West Arsi Zone Health Departments (Annexures 3a, b, and c). By carefully handling completed questionnaires in a confidential manner in accordance with UNISA's ethical research principles (University of South Africa 2024:14) and the nation's (Ethiopia) guidelines for ethical data privacy and security protocol (Ministry of Education 2024:15), the study upheld the values of respect for human subjects.

3.7.2 Confidentiality

Confidentiality in research corresponds to the researcher's ethical act of not disclosing the personal information and identity of research subjects and also protecting sensitive information (Bos 2020:30). It is important to keep the identity of the research participants confidential and anonymous, and assurances should extend beyond protecting their names (Fleming & Zegwaard 2018:211). After the field workers completed the survey questionnaire, the researcher received it, checked it for completeness, and safely placed it in a locked box in the researcher’s office in Goba town. Similarly, the audio recordings and notes taken during qualitative data collection were securely stored in a locked drawer in the same office. Hence, only the researcher will have access to the stored dataset, and the data will be kept safely in his office. The data were captured anonymously, without personal identifiers, and the researcher affirms that no data linked to a research participant will be shared, except for research findings that aggregate information from all study participants.

3.7.3 Veracity

Veracity is the ethical principle of telling the truth about a research study. The ethics of veracity is important among healthcare professionals, and they should know how to communicate the truth regarding diagnosis, treatment outcome or prognosis (Amer 2019:194). The researcher and data collectors honestly informed the participants about the purpose of the study, potential risks and benefits, the right to decide whether to participate without coercion, and the right to withdraw from the study at any time.

3.7.4 Justice

The principle of justice corresponds to fairness and equity, yet researchers are obliged to treat participants fairly and equitably, advocating for vulnerable ones before, during and after the study (Nursing and Midwifery Board of Ireland 2025:7). Respondents were informed that there will be no mistreatment or prejudice against participants in this study based on their place of residence, age, religion, or ethnicity.

3.7.5 Non-maleficence

Researchers have an obligation to protect research participants' rights and to prevent any harm to them from the research process (Bos 2020:41). The researcher is responsible for preventing physical, social, and economic harm resulting from participation in the research. The current study was not designed to inflict any physical, mental or social risk that threatens or endangers the participant and does not pose a serious risk to the participants that outweighs the benefits obtained from participating in the research, except for very low-level discomforts entailed for the participant, including shyness or a minor degree of anxiety. During the data collection period, the enumerators strictly adhered to COVID-19 prevention strategies, including avoiding physical contact with participants, and maintained a physical distance of at least 2 meters from participants during structured and key informant interviews. In addition to maintaining physical distancing, enumerators, FGD facilitators, and FGD participants wore face masks. The enumerators and FGD facilitators cleaned their hands with alcohol-based hand sanitiser and provided hand sanitiser to participants before and after signing the consent forms.

3.7.6 Beneficence

At the end of the interview, the data collectors provided participants with brief information on the importance of family planning and modern contraceptive methods. The participants of the FGDs had the chance to discuss an important health issue (family planning) and share other people’s views and ideas about modern contraceptive methods. The wider community in the study area could benefit from the study results, which will inform future programmes and strategies of the government and other stakeholders aimed at addressing the factors preventing the community from utilising family planning services.

3.7.7 Anonymity

Anonymity implies that neither the researcher nor the reader of the final research report can identify a given respondent's response. Anonymity cannot be fully ensured in the case of interview techniques (Bhattacherjee 2012:138) as the data collectors could, to some extent, know who responded to what. The researcher avoided potential personal identifiers in the data collection tools by using codes to differentiate the survey questionnaire and the specific cluster or location of the interview for the survey and FGD participants. Furthermore, some of these codes or potential identifiers are removed from the data set once their purpose in the research is complete or there is no further need to retain them.

3.7.8 Informed consent

Informed consent is ensured during data collection when a legally competent respondent who can comprehend the information is well informed about the research purpose, procedures, risks, benefits, and limits of confidentiality, and agrees to participate in the study voluntarily, without coercion. Informed consent gives the researcher the right to involve the participant in the research, while at the same time, the respondent’s right is protected (Bos 2020:247).

Enumerators and supervisors with prior experience in data collection and participant-informed consent were recruited, trained, and required to sign a confidentiality agreement form. The enumerators and supervisors were paid to assist with data collection as described in the data collection process above.

During data collection in Phase I, the participants received the information provided in the participant information sheet (Annexures 4 and 6) before giving their informed consent (Annexures 5 and 7). The enumerators supported the participants in understanding the research purpose, duration of the interview, no incentives for participation, the confidentiality of the information, the right not to participate at all or have the right not to respond to any portion of the questionnaire and withdrawing from participation will not restrict them from getting health services. Before requesting participants' informed consent, the enumerators allowed 2-3 minutes for participants to ask questions, and

clarifications were provided to those who had questions or concerns after receiving the information in the participant information sheet.

In the second phase, during qualitative data collection using FGDs, the moderator read the information provided in the participant information sheet. FGD participants were informed in groups about the research purpose, their role in the research, the duration of the discussion, the right to withdraw from participation, the lack of a financial incentive, and that there was no risk except for minor discomfort or nervousness when discussing their personal affairs. The participants were informed that the level of confidentiality in FGDs was lower, as members of the FGD in their group listen to or know their views, opinions and responses. The participant information sheet was also provided to the selected HEWs who participated in the Key informant individual interview to read and understand the research and the information provided in the participant's information sheet.

After participants in each data collection technique had understood the information provided on the information sheet and consent form, they were asked to clean their hands with alcohol-based hand sanitiser and to give their informed consent by signing the consent form. The enumerators and moderators of the FGDs recorded participants' consent on the consent form and kept the signed forms secure (Annexures 5 and 7).

3.8 VALIDITY AND RELIABILITY/TRUSTWORTHINESS

The two most important aspects to consider when assessing any measurement tool or tool for a good research project are reliability and validity (Mohajan 2017:58). Measures of validity and reliability were used to ensure that the data collection tools met an acceptable standard. The validity and reliability of the instruments used in this research are presented in the sections below.

3.8.1 Validity and reliability of quantitative data gathering instrument

Validity corresponds to the degree to which an instrument accurately measures the construct it intends to measure (Kviz 2023:40), while reliability concerns the trust one could have in the data obtained using the instrument (Mohajan 2017:58). A valid measurement is one free from both random and systematic errors, while a reliable

measurement is one free from random error only (Kviz 2023:40). The key measures taken by the researcher to ensure the validity and reliability of the quantitative data are described below, from sections 3.8.1.1 to 3.8.1.7.

3.8.1.1 Internal validity

Validity in quantitative research refers to the precision with which the findings accurately reflect the data (Noble & Smith 2015:34). Internal validity refers to the extent to which an observed difference in the dependent variable is attributed to an independent variable but not an extraneous variable (Duevel 2023:38). To minimise the effect of confounding variables in this study, the researcher made maximum efforts to collect comprehensive data for measuring the effect of variables at intrapersonal, interpersonal, community, institutional and societal level of the socio-ecological framework and carefully selected and fitted statistical analysis models where the effect of confounding variables was minimised through a multi-level analysis of the study variables.

3.8.1.2 External validity

External validity refers to the degree to which a study's results can be generalised to and across other populations and settings (Duevel 2023:38). To generalise a result from a single study, the researcher would carefully identify a target population of individuals, settings, times, outcomes and treatment variation and carefully select a random sample of study participants from this population so that the sample becomes representative of the target population (Johnson & Christensen 2014:400). To ensure representativeness of the study sample to the target population in this study, the researcher carefully identified the target population, the settings across the different agro-ecological zones and variations in the socio-economic and cultural context in the highland, midland and lowland strata, so that a random sample of study participants representing the different contexts of the target population was sampled.

3.8.1.3 Face validity

Face validity refers to the subjective decision based on the researcher’s feelings, thoughts, and intuition about the functionality of the instrument (Sürücü & Maslakçi

2020:2706). In this study, the researcher systematically arranged and categorised the contents of the research instrument for each study objective.

3.8.1.4 Content validity

Evaluation of the measuring tool's suitability for covering a suitable sample of items relevant to the construct under assessment and effectively integrating the construct domains is known as content validity (Sürücü & Maslakçi 2020:2706). To maintain content validity, the data collection tools were reviewed by two other experts who have expertise in the subject matter.

3.8.1.5 Construct validity

Construct validity is concerned with the survey instrument's ability to accurately measure the hypothetical phenomenon or concept by incorporating a relevant and well-aligned list of survey questions capable of measuring the variable of interest (Creswell & Creswell 2023:198). "*The contribution of each construct or element to the total variance of the variable or phenomenon measured determines the level of construct validity"* (Kumar 2011:168). In this study, construct validity was maintained by adopting standard conceptual and operational definitions of the study variables under investigation and by carefully structuring questions used to construct a variable. For example, a standard algorithm for measuring the unmet need for MCM was adopted (Bradley et al 2012:11), where a series of questions were ordered sequentially and applied in the instrument used by this research.

3.8.1.6 Reliability

Reliability refers to the degree to which a measurement is stable when administered over time (Sürücü & Maslakçi 2020:2706). The reliability of an instrument can be affected by different factors, including the wording of the questions, the physical setting, the mood of the interviewee and the interviewer, the nature of the interaction between the interviewer and respondent and the regression effect of the instrument (Kviz 2023:16). Therefore, to ensure the reliability of the tool in this study, the researcher carefully formulated the wording of the data collection tools, pretested the instrument, and made corrections to some question wording before using it for actual data collection. To improve the reliability

of the instrument, the data collectors were also trained to ask each question in the instrument and to use interview techniques.

3.8.2 Trustworthiness and authenticity of qualitative data

The trustworthiness requirements for qualitative research, including credibility, dependability, confirmability, transferability and authenticity, are discussed in the section presented below.

3.8.2.1 Credibility

Credibility refers to how closely related the research findings are to reality (Stahl & King 2020:26). To ensure the credibility of qualitative data, researchers use different strategies, including triangulation, respondent validation, and engaging other researchers to reduce bias (Noble & Smith 2015:35). Different strategies can be used; this research employed FGD and KII methods, along with person triangulation, to ensure the credibility of the qualitative findings. Qualitative findings were triangulated with quantitative findings. Qualitative data were collected from various groups and individuals, including FGDs with married women in the study area, regardless of their MCM use during data collection, and key informant interviews with health extension workers.

3.8.2.2 Dependability

Dependability refers to the consistency and stability of the findings over time (Stahl & King 2020:26). To ensure the repeatability of the research process and the consistency of the findings, the researcher provided a detailed description of the methods and procedures for qualitative data collection and analysis, sufficient for another researcher with expertise in qualitative research to review.

3.8.2.3 Confirmability

Confirmability refers to the objectivity and neutrality of the findings through the maintenance of a transparent and systematic approach throughout the research process (Stahl & King 2020:26). To ensure confirmability in this research, the researcher clearly documented the steps taken during the data collection, analysis and interpretation.

3.8.2.4 Transferability

Transferability refers to the extent to which research findings apply to other situations or contexts. A thick description of the research process, methods and qualitative findings is made, so that the reader will get detailed information and make informed decisions about the transferability of the conclusions to other contexts (Elo, Kääriäinen, Kanste, Pölkki, Utriainen & Kyngäs 2014:6).

3.8.2.5 Authenticity

Authenticity in qualitative research refers to the researcher's degree of genuine and unbiased representation of participants' ideas, opinions and experiences, showing the true perspectives without distortion due to the researcher's influence (Dammann, Friederichs, Lebedinski & Liesenfeld 2021:4). The researcher explicitly stated the research process that led to the findings at hand and the discussions, which were based on comparisons of the current study findings with previous research findings that relate positively and negatively to the current findings. The limitations and possible explanations for the unusual findings were presented transparently to ensure their authenticity.

3.9 SUMMARY

This chapter presented the design and research methods used in conducting the current study. The study used a multi-phase mixed-methods approach, employing an explanatory sequential design in Phases I and II and extending to Phase III for the strategy development. A quantitative house-to-house survey method was used in the first phase of the study, followed by a second phase in which qualitative data were collected using FGDs and KIIs, which provided further explanations and in-depth discussions on the barriers and promoters of MCM use by married women in the study area and a third phase where strategies for enhancing modern contraceptive use were developed. This chapter also covered the sampling, data collection tool, validity, reliability, authenticity, and trustworthiness, as well as the fundamental ethical guidelines for public health research.

CHAPTER 4

DATA MANAGEMENT, ANALYSIS AND PRESENTATION OF RESEARCH FINDINGS

4.1 INTRODUCTION

This chapter mainly presents the quantitative and qualitative data management, analysis, and research findings. Before directly presenting the data management, analysis, and findings, this chapter describes the data source and structures, as well as the sample characteristics of both the quantitative and qualitative components.

Consistent with the sequential explanatory mixed-methods design used in this multi-phase study, the chapter first details quantitative data management, analysis methods, and results. It then describes qualitative data management and analysis procedures, followed by presentation of the qualitative findings. Results are organised according to the study objectives outlined in Chapter 1. The chapter closes by integrating the mixed-methods findings and highlighting key conclusions that informed development of strategies to enhance modern contraceptive use among married women in the Bale Eco-region, Ethiopia.

4.2 DATA SOURCE AND SAMPLES CHARACTERISTICS

This section presents the data source for both the quantitative and qualitative approaches used during the quantitative and qualitative phases of this research. It also presents the characteristics of the sampled clusters and stratifications of the sampled population from which quantitative and qualitative data were collected.

4.2.1 Data source and structure

4.2.1.1 Quantitative data source and structure

The data source for the quantitative approach in this study is primary data collected directly from married women of reproductive age (18-49 years). The quantitative data

were collected using a house-to-house survey in 33 sampled kebeles in the Bale Eco-region. Due to the multistage sampling design, a hierarchical data structure was used during data collection (Leyland & Groenewegen 2020:36). However, the quantitative data in this study were categorised into two levels (Level 1 and Level 2 data). Level 1 data include individual-level data corresponding to intrapersonal, interpersonal, and institutional characteristics of the Socio-ecological framework, collected directly from each respondent using a structured schedule in a house-to-house survey. Level 2 data are cluster-level data obtained by aggregating the individual-level data at each cluster or kebele level (Leyland & Groenewegen 2020:36). Figure 4.1 below illustrates the quantitative data source and its hierarchical structure.

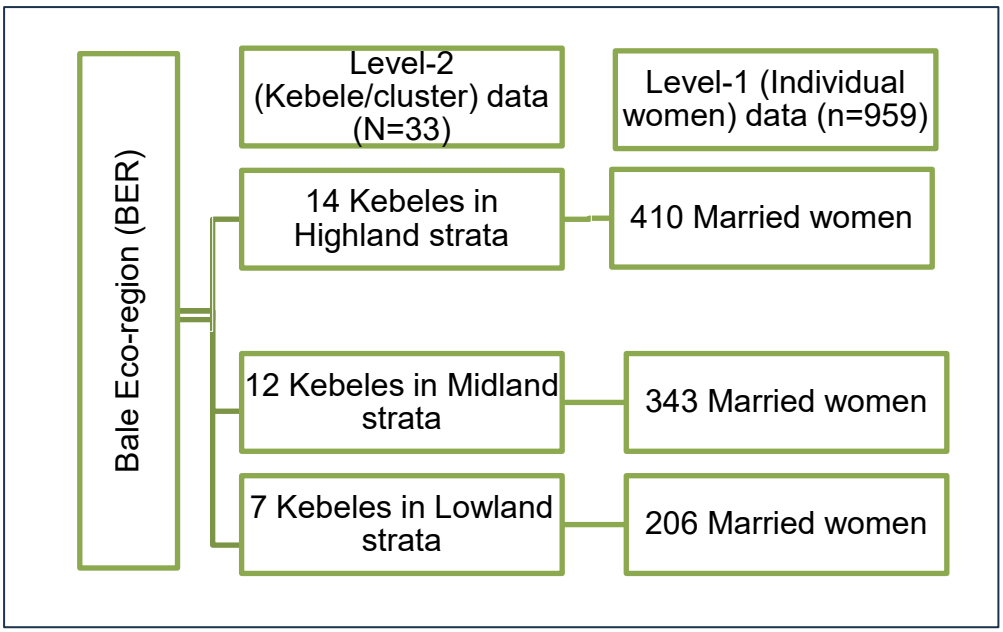


Figure 4.1 Flow chart depicting the quantitative data source and structure

4.2.1.2 Qualitative data source and structure

The qualitative data of this research were obtained from two sources. FGDs conducted among married women of reproductive age (18-49 years) living in selected kebeles of the Bale Eco-region were the primary source of qualitative data in this research. The second source of qualitative data was KIIs conducted with Health Extension Workers who provide family planning services to the community in the Bale Eco-region.

In general, six FGDs and nine KIIs were the sources of qualitative data for this research. Three out of the six FGDs were held among married women who were using an MCM during the study period, while the other three FGDs were organised among married women who were not using an MCM during the study period. An equal number of FGDs and KIIs were purposively distributed across the Highland, midland and Lowland strata to ensure representation of the diverse socio-ecological, economic and cultural contexts of the study area. Figure 4.2 illustrates the qualitative data sources and structure.

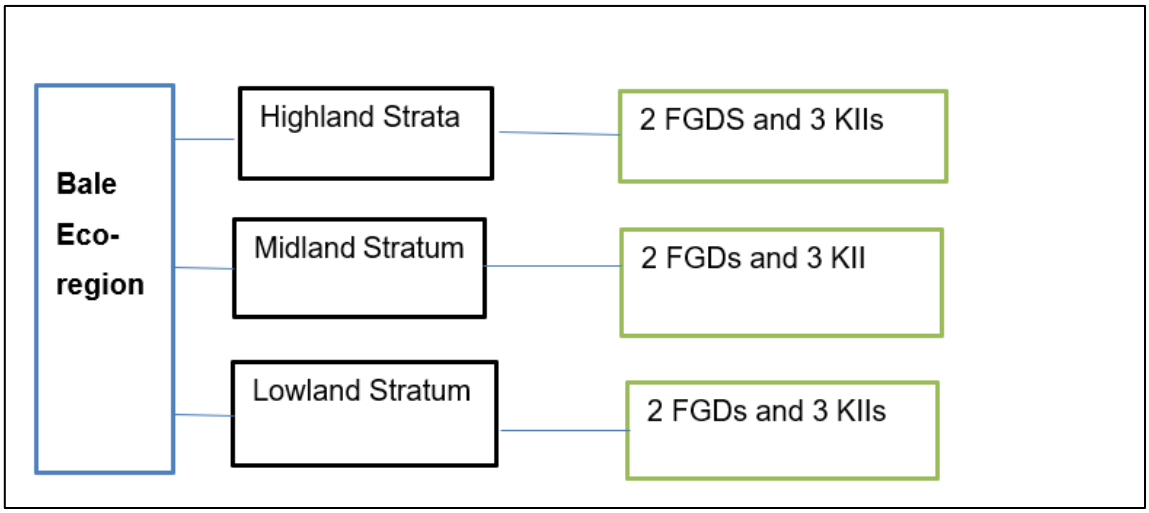


Figure 4.2 Qualitative data source and structure

4.2.2 Sample realisation

4.2.2.1 Sample realisation for quantitative data

A total of 33 kebeles (clusters) were included in the quantitative study, stratified into three agro-ecological zones: highland (14 kebeles), midland (12 kebeles), and lowland (7 kebeles) (Haileslassie, Taye, Diyessa & Mekuria 2024:3). In the first stage of sampling, these 33 clusters were randomly selected from each stratum. In the second stage, 989 households were randomly sampled from the selected kebeles using systematic random sampling (420 households from the highland, 359 from the midland, and 210 from the lowland).

Of the 989 households sampled, quantitative data were successfully collected from 959 married women aged 18-49. About 30 sampled households were excluded from the final analysis due to non-response (25 households, participants not traced despite repeated

attempts by the data collectors) and incomplete data (5 households, missing data on the gross portion of the tool). The actual sample realisation of 959 respondents from the planned 989 households confirms that the sampling assumptions were well fulfilled: only 25 households were missed after repeated visits, yielding an observed household response rate (Rh) of 0.975, and only 5 women were excluded due to incomplete data, yielding an observed individual response rate (Ri) of 0.995. This results in a combined response rate of Ri × Rh = 0.995 × 0.975 = 0.97 (97%), thereby maintaining the desired relative standard error of 0.11 for the estimate of modern contraceptive use. Figure 4.3 below depicts a map of the sampled kebeles from which the quantitative data were collected.

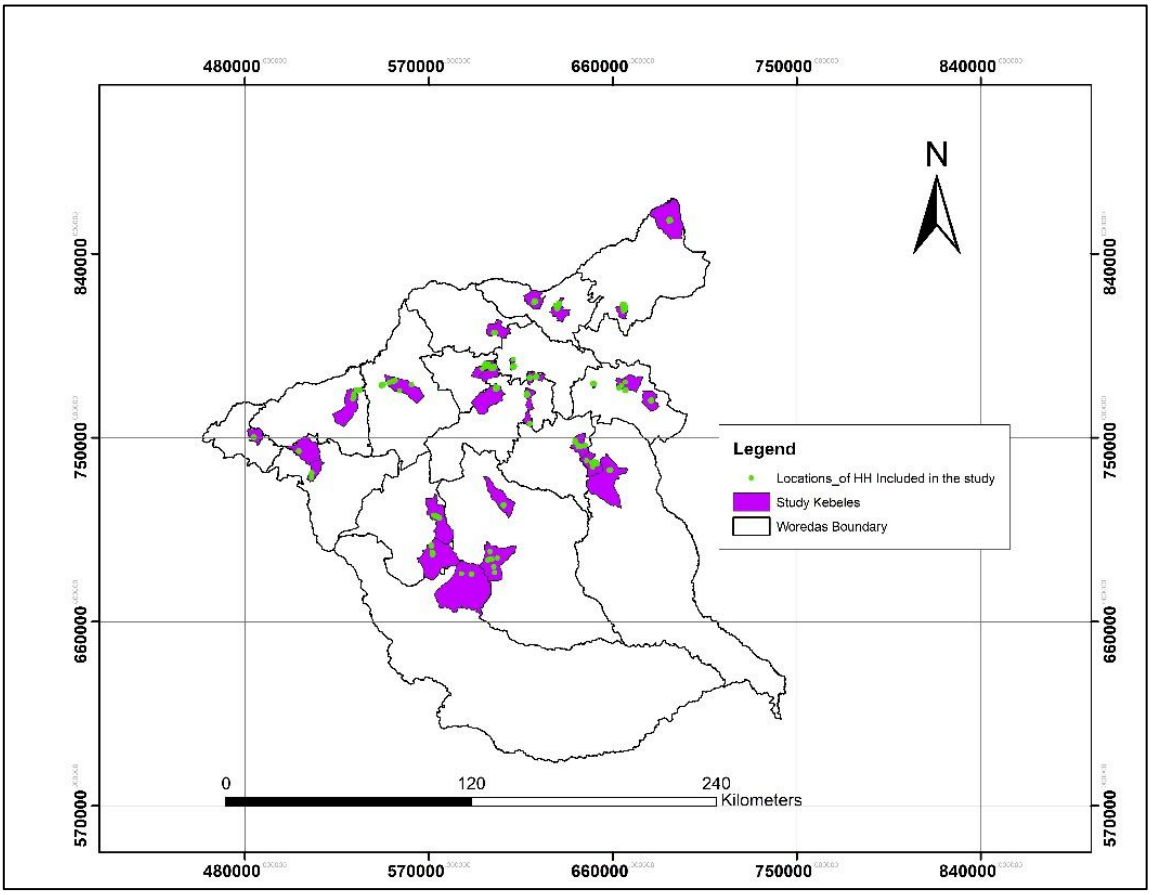


Figure 4.3 Map illustrating sampled kebeles of the study

(Illustration developed by researcher)

4.2.2.2 Sample realisation of the qualitative data

The qualitative data were collected using six FGDs (two FGDs held in kebeles located in the highland stratum, two FGDs in kebeles located in the midland stratum and two FGDs

in kebeles located in the lowland stratum). Overall, 38 married women (12 in the highland stratum, 13 in the midland stratum and 13 in the lowland stratum) participated in the FGDs. Additionally, nine HEWs (three KIIs in each of the highland stratum, midland stratum and lowland stratum) participated in the KIIs.

4.2.3 Challenges and positive outcomes of the data collection

Several challenges were encountered during fieldwork, but they were successfully managed through specific strategies implemented by the researcher and the research team. The main challenges included difficult terrain, transportation issues, and difficulty locating households in remote areas.

First, the mountainous topography of the Bale Mountains and the dispersed settlement pattern in some villages made it difficult for the research team to reach certain villages during rainy days. Muddy roads caused vehicles to get stuck, which affected the proposed schedule. This challenge was managed by rescheduling visits to kebeles facing topographic challenges and by coordinating with local transport providers experienced in navigating difficult terrain.

Second, enumerators had difficulty identifying some sampled households due to unclear road markings and the remoteness of some villages. This challenge was addressed by recruiting local guides who were familiar with the settings of the sampled villages. These guides accompanied the enumerators and helped locate the selected households accurately.

Third, there was a problem of not finding the appropriate respondent in some sampled households, particularly in pastoralist villages where women stayed in the field to care for their cattle. To minimise non-response rates, enumerators made multiple revisits to such households before concluding data collection in the selected village. In most cases, at least two to three revisit attempts were made to ensure the eligible respondent was interviewed. Despite these challenges, the positive outcomes of the data collection process include the successful completion of the structured quantitative schedule with 959 married women across the 33 sampled kebeles during Phase I of this research, as well as the completion of FGDs and KIIs with the appropriate participants. Thus, the researcher collected the necessary data to address all the proposed research objectives.

4.3 QUANTITATIVE DATA MANAGEMENT, ANALYSIS AND FINDINGS

Research data management refers to a group of activities and arrangements of the data set that make it easier to locate, understand, and use research data for the advantage of your partners and yourself in the future (Briney 2023:7). The section below presents the quantitative data management, data analysis, and presentation of quantitative research findings.

4.3.1 Quantitative data management: Phase I

The study employed various techniques for quantitative data management across the research process, including data collection, entry, documentation, organisation, and storage.

Data validity, consistency, and completeness checks were conducted throughout the data collection process. Attention was given by the researcher to the integrity of data during both the manual recording of the completed tool by the enumerators and during the electronic recording of the data. Careful observation, storage and monitoring of the dataset were made by the researcher.

Upon completion of data collection, a data-entry template was created in IBM SPSS Version 25. Careful data coding was performed for each variable by assigning numerical codes to categorical responses or by structuring the survey data in a consistent variable format.

Double data entry was performed to ensure accuracy, with quantitative data from the structured schedule entered into the data entry template by an experienced data clerk and the researcher over four weeks (15 July 2021 to 15 August 2021). Further data cleaning measures were taken through careful review of the data set for errors, missing data, duplicates, outliers, and logical inconsistencies to ensure its accuracy.

The soft copies of the completed dataset were stored password-protected on the researcher's personal computer and on an external hard disc, and the hard copies were stored in a locked cabinet by the researcher.

4.3.1.1 Measurements of quantitative variables

The measurement section below presents the dependent and independent variables used in the quantitative data analysis, as well as the socio-ecological levels of analysis for each independent variable in the current study. It also presents the operational definitions for measuring each study variable.

4.3.1.1.1 Outcome (dependent) variables

There are two outcome variables in this study. The first outcome variable was “Modern contraceptive method use,” and the second outcome variable was “Unmet needs for modern contraceptive methods.” The measurement of these outcome variables for the quantitative data analysis is presented below.

- **Modern contraceptive method use**

A binary outcome variable that measured modern contraceptive method use by the respondent or her husband at the time of the survey. This variable was created from two sequential questions from the quantitative survey that asked: (a) “Are you (or your partner) currently doing something or using any method to delay or avoid getting pregnant?”, and (b) “Which method(s) are you (or your partner) currently using?” Women were coded ‘1’ if they responded affirmatively to the first question and, in response to the second question, chose any of the following contraceptive methods: pills, injectables, implants, intrauterine devices, female sterilisation (bilateral tubal ligation) or male sterilisation (vasectomy), condoms (male or female), and lactational amenorrhea; or coded ‘0’ otherwise.

- **Unmet need for a modern contraceptive method**

A binary outcome variable dichotomised into 1=unmet need for modern contraceptive method (the proportion of married women who are not currently using a modern contraceptive method and either (1) are fecund, non-pregnant, and non-postpartum amenorrhea that do not want any more children or want to postpone next pregnancy for two years or more, (2) pregnant women who have a mistimed or unwanted current pregnancy, and (3) postpartum amenorrhoeic women whose recent childbirth in the last

two years was mistimed or unwanted, or otherwise 0=No unmet needs for modern contraceptive method (Bradley et al 2012:13).

4.3.1.1.2 Exposure (independent) variables

The exposure variables were conceptualised into two major levels: Level 1 (individual-level variables), corresponding to the intrapersonal, interpersonal, and institutional characteristics, and Level 2 (cluster-level variables), corresponding to the *community and societal characteristics* of the socio-ecological model.

- **Level 1 (Individual level variables)**

  - *Intrapersonal level variables*

Age of the women: Categorised as "18-24 years, 25-34 years, and 35-49 years."

Religious affiliation: Categorised into Muslim and non-Muslim.

Education: Educational attainment was grouped into "no schooling," "primary school," and "secondary or above secondary school."

Employment status: The employment status was assessed using two questions that asked the women if they had done any work in the past three months and whether they were paid in cash or in kind for the work. Women who were paid in cash or kind for their work were coded "1" while those who were not paid or did not work were coded "0."

Number of children alive: Was categorised into "0-1," "2-4," or "5 or more" children alive.

Wealth index: The wealth status was assessed based on Principal Component Analyses (PCA) of ownership of different household assets and categorised into quintiles as lowest (1), lower (2), middle (3), higher (4), and highest (5) quintiles.

Knowledge of the respondent: Is a composite variable using 17 knowledge assessment questions, with correct responses of each question given a value of "1" and incorrect responses "0," having the sum of knowledge score values of respondents ranging from

“0 to 17.” A reliability test of the tool's knowledge construct was conducted using Cronbach’s Alpha (α = 0.850). Respondents’ Knowledge level was categorised as “Good Knowledge” for those who scored at or above the median on the knowledge assessment questions and “Poor Knowledge” for those who scored below the median.

- *Interpersonal level variables*

Husband’s educational status: Categorised into “No schooling,” “Primary school 1-6,” “Secondary school 7-12” and “Above secondary school.”

Couple discussion: Was assessed using the question, “Have you and your spouse/partner in the past 12 months discussed MCM use?” Thus, the responses were categorised into ‘yes=1’ or ‘no=0.’

Partner support: Perceived partner’s support towards MCM use was categorised into ‘yes=1’ or ‘no=0.’

Peer group discussion: Was assessed using the question, “Have you discussed with your friends, neighbours, or relatives in the past 12 months about the number of children and/or the use of MCM? The response options were categorised into ‘yes=1’ or ‘no=0.’

- *Institutional level variables*

Visited by health extension workers: Whether a health extension worker visited the respondent’s household in the previous 12 months, where responses were categorised into Yes=1 or No=0.

Health facility visits: Whether the respondent visited a health facility in the last 12 months, with the responses categorised into Yes=1 or No=0.

FP education: Whether the respondent received a family planning education in the last 12 months, with responses categorised into Yes=1 or No=0.

- **Level 2 (Cluster-level) variables**

Cluster-level variables were created by aggregating individual responses within each cluster (kebele). For each variable, the index woman's response was subtracted from the group total, and the result was divided by the number of other women in the group. This produces an aggregate value that reflects the characteristics of other women in the same cluster, excluding the index woman, thereby preventing endogeneity bias and ensuring that the cluster effect represents contextual community influence.

Dichotomising aggregate cluster-level variables is a widely accepted approach in multi-level analysis literature for examining contextual effects on health behaviour. This approach facilitates interpretation of cluster-level effects while accounting for between-cluster variability, enables comparison with similar studies and meta-analyses, and provides clearer, more actionable insights for policymakers by expressing results as "high" versus "low" community characteristics rather than continuous coefficients. As the data were normally distributed, the median value across the overall dataset was used as the cutoff point.

- *Community-level variables*

Cluster-level women's education: Median-level women's education in the cluster categorised into 1=High women's education cluster (cluster-level median education >=grade 4 among other women in the cluster) and 0=Low women's education cluster (cluster-level median education less than grade 4 among other women in the cluster). We consider grade 4 completion as a meaningful educational threshold for rural women in the Ethiopian context. Again, it reflected the median value, ensuring the categorisation was based on the empirical distribution of education in the study population rather than an arbitrary cut-off point.

Cluster-level women's employment: Proportion of women employed in the group, classified into 1=High women's employment cluster (>50% of other women in the group employed) and 0=Low women's employment cluster (<=50% of other women in the group employed). The cut-off point, defined as 50% of women's employment (including self-employment or farming to generate their own income) in the labour force, reflects an ideal level of women's participation in rural Ethiopia.

Cluster-level poverty: Proportion of women in the cluster having the poorest and poor wealth quantiles, categorised into 1=High poverty cluster (>=50% of other women were poor in the cluster) and 0=Low poverty cluster (<50% of other women were poor in the cluster). This cutoff point (50%) for classifying the cluster as high- or low-poverty was based on the average wealth index in the overall sample.

Cluster-level mass media exposure: Proportion of women exposed to FP message through mass media in the previous 12 months, categorised into 1=High mass media exposed cluster, where more than 50% of other women in the cluster were exposed to mass media and 0= Low mass media exposed cluster, where 50% or less of other women in the cluster were exposed to mass media.

- *Societal level variables*

Women's decision-making autonomy: Women's household decision-making was measured using a four-item scale that assessed the final say on respondents' own health care, household purchases for daily needs, large purchases, and visits to family or relatives. A higher score indicates greater autonomy in decision-making. The median score on the household decision-making autonomy index in the cluster was classified into 1=High (cluster with a high median value of women's decision-making autonomy) and 0=Low (cluster with a lower median value of women's decision-making autonomy). A reliability test of the tool for measuring "Women's decision-making autonomy" was conducted using Cronbach's alpha ($\alpha = 0.795$), indicating acceptable reliability of the construct.

Attitudes towards wife beating: Violence justification was calculated from a five-item scale (going out without telling partner, neglecting the children, arguing with partner, burning food, and refusing to have sex with partner) with responses measured on a 5-point scale. A higher score indicates a positive attitude that does not support intimate partner violence. The median attitude score on the violence justification index scale in the cluster was classified into 1=High (cluster with a higher median value of attitude against beating of the wife) and 0=Low (cluster with a lower median value of attitude against beating of the wife). A reliability test for the construct or the tool for measurement of

“Attitudes towards wife beating” was checked using a Cronbach’s Alpha test (α = 0.916, indicating very good reliability).

Contraceptive social norm: A composite variable from four items of perception on contraceptive social norm (many women in the society use MCM; religious leaders and other norm holders support the use of MCM; most people in your social group (friends, parents, neighbours) support the use of MCM; women who use MCM do not encounter sanctions or negative reaction from their social group) with responses measured on a 5-point scale. A higher score indicates a positive social norm of contraception. The median value of the contraceptive social norm was calculated for each cluster and categorised as 1 = High (the cluster with the highest median value) and 0 = Low (the cluster with the lowest median value). A reliability test for the construct or the tool for measurement of “contraceptive social norm” was checked using a Cronbach’s Alpha test (α = 0.819, indicating good reliability).

Agroecology of the cluster: Agro-ecological stratification of the cluster was made using the altitude or elevation above sea level, where clusters were categorised into: Highland (altitude greater than 2300 meters above sea level); Midland (altitude between 1500 and 2300 meters above sea level); and Lowland (altitude of less than 1500 meters above sea level.

Place of residence: Classified into rural and urban, according to the location of the place of residence of the study participants.

4.3.2 Quantitative data analysis

The quantitative data were analysed using IBM SPSS Version 25. Descriptive analyses were performed to determine measures of central tendency (frequency distributions, percentages, mean, standard deviation, and median) for both individual- and cluster-level variables. Then, bivariate analysis was performed by cross-tabulating each independent variable with the dependent variables (use of modern contraceptive methods and unmet needs for MCM). Association between categorical variables were examined using the Pearson Chi-Square test ($P<0.05$), which assessed the statistical significance of observed differences in cross-tabulated frequencies. Factors associated with the

dependent variables were assessed using multi-level mixed-effect logistic regression models.

The quantitative data exhibit a hierarchical structure: individual women (Level 1) are nested within clusters (Level 2). This nesting violates the key assumption of traditional regression models that observations are independent and that equal variance between clusters is considered. It assumes that women living in the same cluster are expected to share similar characteristics with women in another cluster. If this clustering effect is not accounted for (as in simple logistic regression), it inflates standard errors and leads to incorrect significance testing. Multi-level models resolve this by identifying both within-cluster variance (differences between observations within the same cluster) and between-cluster variance (Fagbamigbe & Bakre 2018:355).

The study fitted two separate multi-level mixed-effect logistic regression models. Separate models for each dichotomous outcome variable (MCM use and unmet need for MCM), both measured at the individual women level. Each model estimated:

Fixed effects: Exposure variables at Level 1 (individual level) and Level 2 (cluster/kebele level)

Random effects: Variation at Level 2 (cluster level)

During the analysis, the five socio-ecological levels were collapsed into two statistical levels for the multi-level mixed-effect modelling: (Individual level: intrapersonal, interpersonal, and institutional factors), and Cluster level: community and societal/ policy factors) to ensure stable estimation under clustering and sample-size constraints and preserve model wellness. Such condensation may obscure level-sensitive phenomena and variance partitioning, so findings were interpreted thoughtfully and model robustness was assessed.

A theory-driven approach guided the model-building process, with variables selected based on the socio-ecological framework and prior empirical evidence from similar studies (Debelew & Habte 2021:5). Bivariate analyses were initially conducted between the independent variables and each dependent variable. Those independent variables with a p-value of less than 0.25 in the bivariate analysis were included as candidates for

entry into the multivariable multi-level fixed-effects logistic regression models. This inclusion threshold ($p < 0.25$) was chosen to avoid excluding potentially important variables that might become significant in the presence of other covariates. Multicollinearity among the candidate independent variables was further assessed using the Variance Inflation Factor (VIF), with values greater than 10 indicating multicollinearity; such variables were excluded from the final models (Chan, Leow, Bea, Cheng, Phoong, Hong & Chen 2022:3).

The multi-level mixed-effect models were fitted sequentially, starting with a null model (intercept-only model) that tested the null hypothesis for the dependent variables: (1) there was no between-cluster variation in modern contraceptive method use, and (2) there was no between-cluster variation in unmet need for modern contraceptives. This sequential model-building strategy enabled the systematic assessment of how much variance each set of factors explained and how model fit improved with the addition of individual- and cluster-level factors.

The researcher fitted a total of six models (three for each dependent variable). Model-1_{MCMU}, Model-2_{MCMU}, and Model-3_{MCMU} correspond to models fitted to identify factors associated with Modern Contraceptive Method Use (MCMU), and Model-4_{UMN}, Model-5_{UMN}, and Model-6_{UMN} correspond to models fitted to identify factors associated with Unmet Need (UNM) for modern contraceptive methods. Each of the models is described below:

Model-1_{MCMU}: A null model or an intercept-only model fitted without any factors, to test the random effect of between-cluster variability in modern contraceptive method use. This model established the baseline between-cluster variance and provided the initial ICC value for comparison with subsequent models.

Model-2_{MCMU}: A model that included only the individual-level factors or effects on modern contraceptive use by married women. This model assessed how much of the between-cluster variance was explained by individual-level factors alone.

Model-3_{MCMU}: A full model incorporating both individual- and cluster-level factors was estimated concurrently to reveal their respective fixed and random effects on married women's modern contraceptive use. Thus, it provided the adjusted estimates for both individual and cluster-level factors.

Model-4$_{UMN}$: A null model or an intercept-only model fitted without including any factors in the model that was used to test the random effect of between-cluster variability in unmet need for modern contraceptive methods. This model established the baseline between-cluster variance for unmet need.

Model-5$_{UMN}$: A model that included only the individual-level factors or effects on unmet need for modern contraceptive methods amongst married women. This model assessed how much of the between-cluster variance was explained by individual-level factors alone.

Model-6$_{UMN}$: A full model incorporating both the individual-level and cluster-level factors was included concurrently to reveal their pure fixed and random effects on unmet need for modern contraceptives amongst married women. This final model provided adjusted estimates for both individual- and cluster-level factors affecting unmet need.

The multi-level model's analysis, where the quantitative data were fitted, was represented by the equation:

$$\boldsymbol{log} = \left[\frac{\boldsymbol{\pi_{ij}}}{(\mathbf{1} - \boldsymbol{\pi_{ij}})}\right] = \boldsymbol{\beta_0} + \boldsymbol{\beta_1 X_{1ij}} + \cdots + \boldsymbol{\beta_n X_{nij}} + \boldsymbol{uo_j} + \boldsymbol{e_{ij}}$$

Where:

- π_{ij} is the probability of the presence of modern contraceptive use or the probability of the presence of unmet need of women 'i' in cluster 'j.'
- $(1-\pi_{ij})$ is the probability of non-contraceptive use, or the probability of no unmet need of women 'i' in cluster 'j.'
- β_0 is the log odds of the intercept.
- $\beta_1, \ldots \beta_n$ are the effect sizes of individual and community-level factors.
- $X_{1ij} \ldots X_{nij}$ are independent variables at the individual and community-level.
- u_{Oj} are random errors at the community (cluster) level.
- e_{ij} is the random error at the individual level.

The random effect was explained using the intraclass correlation (ICC), which describes the dependence in the data and measures the extent to which individuals within the same kebele (cluster) are more similar to each other than to individuals in different kebele (clusters). The ICC was used to show the level of between-cluster correlation within a model and to compare successive models by examining the decline in the ICC value. A substantial ICC value (typically >0.05) in the null model indicated that multi-level modelling was appropriate, as it confirmed meaningful between-cluster variation. The decline in ICC across successive models indicated the extent to which individual- and cluster-level factors explained the between-cluster variation. For binary responses, the ICC is usually stated in terms of the correlation between the latent responses, which could be calculated using between-cluster variance and within-cluster variance as:

$$ICC = \frac{\sigma_{uo}^2}{\sigma_{uo}^2 + \sigma_e^2}$$

Where; σ_{uo}^2 is cluster/kebele level variance and σ_e^2 is the individual level variance. In the logistic regression multi-level model, the distribution of the within-cluster variance or Level-1 residual variance (σ_e^2) is standardised and fixed at $\left(\frac{\pi^2}{3} \approx 3.29\right)$ (Zewude, Debusho & Diriba 2022:8; Fagbamigbe & Bakre 2018:360).

The proportional change in variance (PCV) was computed for each model relative to the empty model to assess the factors' ability to explain the outcome variables. The PCV was calculated by:

$$PCV = \frac{V_0 - V_{xi}}{V_0}$$

Where $\mathbf{V_0}$ is the variance in the outcome variable in the empty model, and $\mathbf{V_{xi}}$ is the variance in successive models. A higher PCV value indicated that the included factors explained a greater proportion of the between-cluster variance, guiding the selection of the most explanatory model.

Median odds ratio (MOR) was calculated to provide a clearer interpretation of cluster-level variance by transforming between-cluster variance into an odds ratio scale. The MOR is defined as the median value of a set of odds ratios between the clusters at the highest and the lowest risks of the outcome variable when randomly picking out two clusters (Adam, Twabi & Manda 2021:3; Wasiyhun & Geda 2024:4). It shows the increased risk (in median) that one would have if moving to a cluster with a higher risk of MCM use or Unmet need for MCM. An MOR greater than 1.0 indicated meaningful cluster-level variation, and the magnitude of the MOR guided the interpretation of the strength of cluster effects. MOR was computed as follows:

$$\boldsymbol{MOR = \left[\sqrt{2\,X\,\sigma^2\,X\,0.6745}\right] \approx exp(0.95\sigma)}$$

Where; $\boldsymbol{\sigma^2}$ is the cluster-level variance, and 0.6745 is the 75th centile of the cumulative distribution function of the normal distribution with mean 0 and variance 1.

The fixed-effect sizes of individual- and cluster-level factors on modern contraceptive method use or unmet need for MCM were expressed as Adjusted Odds Ratios (AORs) with 95% Confidence Intervals (95% CIs). Post-estimation goodness-of-fit tests were conducted to assess how well the models fit the data. The tests included comparing the models' -2 Log Likelihood and AIC values. The model with the lowest -2 Log Likelihood and AIC values was considered the best model for two-level logistic regression (Fagbamigbe & Bakre 2018:360). These indices guided the final interpretation by confirming that Model-3$_{MCMU}$ and Model-6$_{UMN}$ (the full models) provided the best fit, as they had the lowest -2 Log Likelihood and AIC values compared to the null and individual-level-only models, and thus these full models were used for reporting the final adjusted associations presented under 4.4.1.9 and 4.4.1.10 below.

The statistical analysis of the quantitative data was performed from August 16th to 30th, 2021. A statistician was consulted, and support was sought to carefully check the steps used by the researcher in conducting the statistical analysis based on the data analysis plan (Annexure 16).

4.4 PRESENTATION OF THE QUANTITATIVE RESEARCH FINDINGS

The section below presents the research findings obtained by the analysis of the quantitative data set in Phase I.

4.4.1 Quantitative research results

The quantitative data were collected from 33 randomly selected kebeles or clusters in the Bale Eco-region. Among these, 14 (42.4%) clusters were in the highland stratum, 12 (36.4%) clusters were in the midland stratum, and 7 (21.2%) clusters were in the lowland stratum. A total of 959 married women out of the 989 sampled were successfully interviewed, yielding an overall response rate of 96.9%. The quantitative research results are presented below.

4.4.1.1 Intrapersonal and interpersonal characteristics

The following section presents findings at the intrapersonal and interpersonal levels, including socio-demographic characteristics, sexual and reproductive characteristics, and respondents' knowledge of MCMs and interpersonal communication.

4.4.1.1.1 Socio-demographic characteristics

Table 4.1 presents the socio-demographic characteristics of the study participants, including age, religious affiliations, ethnic categories, educational background of the respondents and their partners, employment status of the respondents, husband's marital form (polygamy), and the wealth index of the respondents' households.

The mean age (±SD) of the study participants was 30.13 (±7.4) years. Most of the respondents, 441 (46%), were aged 25-34 years. Nearly two-thirds (620, 64.7%) of the study participants were Muslim, and the other 339 (35.3%) were non-Muslim, mainly Orthodox Christian and Protestant. Regarding the educational background, more than a third, 358 (37.3%) of the women and 296 (30.9%) of their husbands had not attended school. Three hundred fifty-four (36.9%) of the women were employed or engaged in some work in the 3 months before the survey to earn money. Approximately 164 (17.1%)

of the study participants had a husband in a polygamous marital relationship. Table 4.1 presents the socio-demographic characteristics of the study participants enrolled in the quantitative survey.

Table 4.1 Socio-demographic characteristics of the quantitative study participants (N=959)

Variable	Category	Frequency	Percent
Age of respondent in years	<=24 years	224	23.4
	25-34 years	441	46.0
	>=35 years	294	30.6
	Total	**959**	**100.0**
	Mean age (±SD)	30.13 (±7.4)	
Religious affiliation	Muslim	620	64.7
	Non-Muslim	339	35.3
	Total	**959**	**100.0**
Ethnicity	Oromo	913	95.2
	Amhara	46	4.8
	Total	**959**	**100.0**
Educational status	No schooling	358	37.3
	Elementary schooling (grade 1-6)	322	33.6
	High school and above (>= Grade 7)	279	29.1
	Total	**959**	**100.0**
Employment status	Not employed or not make money	605	63.1
	Employed or make money	354	36.9
	Total	**959**	**100.0**
Husband's education	No schooling	296	30.9
	Grade 1-6	282	29.4
	Grade 7-12	291	30.3
	> Higher education	90	9.4
	Total	**959**	**100.0**
Husband in Polygamous marriage	Non-polygamous husband	795	82.9
	Polygamous husband	164	17.1
	Total	**959**	**100.0**
Household Wealth Index	Lowest	209	21.8
	Lower	110	11.5
	Middle	248	25.9
	Higher	174	18.1
	Highest	218	22.7
	Total	**959**	**100.0**

Table 4.1 above indicates that more than a fifth (n = 319; 33.3%) of the study participants were from the two lowest wealth quantiles, whereas the other (n = 392; 40.8%) were from the two highest wealth quantiles.

4.4.1.1.2 Sexual and reproductive characteristics

More than half (507, 52.9%) of the respondents married for the first time before they turned 18 (18 is the legal age for marriage in Ethiopia). 182 (19.0%) of the respondents had already given birth >=7 times, and 362 (37.7%) of the women had >=5 children who were alive during the data collection period. More than half (53.9%) of the respondents had a history of recent childbirth (during the last 24 months), and 172 (17.9%) of the respondents were postpartum amenorrhoeic during the data collection period. The study revealed a high magnitude of unintended childbirths, where more than one in five (21.1%) of recent childbirths by the study participants were mistimed, and the other 74 (7.9%) were unwanted.

Regarding the ideal number of children preferred by the respondents who participated in the quantitative survey, most of them, 544 (57.8%), wish to have >=6 children in their lifetime. However, in response to the intended timing for the next pregnancy, only 122 (14.0%) of the respondents want another pregnancy soon (within the next two years), while the great majority 503 (57.7%) of the respondents want to postpone the next pregnancy at least for two years, and another 118 (13.5%) of respondents need no more childbirth or future pregnancies. Table 4.2 below summarises the sexual and reproductive characteristics of the study participants.

Table 4.2 Sexual and reproductive characteristics of the quantitative study participants (N=959)

Variable	Category	Frequency	Percent
Age at first marriage	<=15 years	255	26.6
	16-17 years	252	26.3
	>=18 years	446	46.5
	Total	**953**	**100.0**
Number of childbirths	<=2 childbirth	273	28.5
	3-6 childbirths	504	52.5
	>=7 childbirth	182	19.0
	Total	**959**	**100.0**
Number of living children	<=1 child alive	144	15.0
	2-4 alive children	453	47.2
	>=5 alive children	362	37.7
	Total	**959**	**100.0**
Ideal number of children preferred	<=3 children preferred	65	6.9
	4-5 children preferred	332	35.3

Variable	Category	Frequency	Percent
	>=6 children preferred	544	57.8
	Total	**941**	**100.0**
Childbirth in the last 24 months	No	442	46.1
	Yes	517	53.9
	Total	**959**	**100.0**
Women with postpartum amenorrhoea	No	787	82.1
	Yes	172	17.9
	Total	**959**	**100.0**
Last childbirth intended	Intended	634	66.2
	Mistimed	197	20.5
	Unwanted	74	7.7
	No response or not sure	54	5.6
	Total	**933**	**100.0**
Perceived fecundity	Not fecund	87	9.1
	Fecund	832	86.7
	Not sure of capability	40	4.2
	Total	**959**	**100.0**
Intended time for next pregnancy	Within next 2 years	122	14.0
	After 2 years	503	57.7
	Do not want at all	118	13.5
	Un known or not sure	129	14.8
	Total	**872**	**100.0**

4.4.1.1.3 Knowledge of respondents about MCMs

Nine hundred twenty-six (96.6%) of the study participants were familiar with the term modern contraceptive method. The knowledge level of respondents was assessed through measuring the aggregate knowledge score of 17 knowledge questions on modern contraceptive methods. A score of '1' was given for each of the correct responses to a knowledge assessment question and otherwise '0,' to measure the composite knowledge score of each respondent. About 387 (40.4%) of the respondents scored below the median (poor knowledge), while the other 572 (59.6%) scored at or above the median (good knowledge). Table 4.3 presents the knowledge status of the study participants.

Table 4.3 Knowledge on MCMs amongst the quantitative study participants (N=959)

Awareness regarding MCMs	Frequency	Percent
Familiar with the word modern contraceptive	926	96.6
Know pills	804	83.8
Know Injectable methods	883	92.1
Know Implants	593	61.8
Know IUDs	309	32.2
Know female sterilisation	110	11.5
Know male sterilisation	78	8.1
Know male condom	218	22.7
Know female condom	105	10.9
Know lactational amenorrhoea (LAM)	237	24.7
Know emergency contraceptive pills	152	15.8
MCM helps to space pregnancy	870	90.7
Help to limit family size	648	67.6
Help to prevent unwanted pregnancy	558	58.2
Improves maternal health	580	60.5
Improves children's health	586	61.1
Improves household economy	563	58.7
Poor knowledge (below the Median score)	387	40.4
Good knowledge (Median or above)	572	59.6

4.4.1.1.4 Source of Information about MCM

This study found that health extension workers (HEWs) were the leading sources of information on MCM in the study population. About 846 (88.2%) respondents obtained information on MCM from HEWs, while 604 (63.0%) obtained information on MCM from other health professionals, 410 (42.8%) from different media outlets, and 301 (31.4%) from their peer groups.

Regarding interpersonal communication on contraceptive use, 537 (56.0%) of the respondent discussed MCM use with their husband in the last 12 months. About 625 (65.2%) of the women perceive that their husband supports the use of MCM. More than a third (35.7%) of the respondents discussed MCM with peer groups or neighbours in the last 12 months. Table 4.4 shows the sources of information related to family planning and the status of interpersonal communication among the study participants.

Table 4.4 Sources of information and interpersonal communications (N=959)

Information source about MCM	Frequency	Percent
HEWs	846	88.2
Health workers	604	63.0
Media (radio, TV)	410	42.8
Peers or neighbours	301	31.4
Husband/partner	225	23.5
Volunteers	109	11.4
Non-governmental organisations	127	13.2
Discussion on MCM use with a partner in the last 12 months	537	56.0
Perceive respondent's partner supports use of MCM	625	65.2
Discussed with peer groups or neighbours, or relatives about the number of children and MCM use	342	35.7
Discussed the number of children or MCM use with members of CBOs or social support groups (n=342)	141	40.8

4.4.1.2 Health service and institutional characteristics

About 558 (58.2%) of the study participants and their family members were covered under community health insurance during the study period. The nearest health facility accessible to the participants was a health post (546; 56.9%), a health centre (324; 33.8%), a private clinic (67; 7.0%), and a public hospital (22; 2.3%). More than two-thirds (629, 65.6%) of the participants can reach the nearest health institution on foot in less than half an hour.

The major sources for MCM for women who intend to use MCM were health post 818 (85.3%), health centre 728 (75.9%), government hospital 323 (33.7%), private clinic 314 (32.7%), pharmacy/drug store 187 (19.5%) and private hospital 140 (14.6%). Seven hundred sixty (79.2%) of the respondents had visited a health institution during the last 12 months before the survey, and 498 (51.9%) received education on family planning in the last 12 months before the survey (Table 4.5). More than half (550, 57.4%) of the study participants were visited by HEWs during the previous 12 months, and 535 (55.8%) of the women received family planning counselling from HEWs.

The study assessed the Contraceptive Method Information Index (CMII) among women who were using an MCM during the study period. CMII was computed through asking contraceptive users if they were counselled by the family planning provider about the four basic information. The four basic contraceptive method information to counsel every

contraceptive user includes (1) the availability of other MCM other than the one she is currently using, (2) about the side effects of the method she is currently using, (3) what to do if she encounters a problem while taking the current method, and (4) about the possibility to shift to another convenient MCM. Accordingly, only half 178 (51.0%) of the current contraceptive users were informed about all the basic information by their contraceptive provider. Whereas nearly one in 10 (9.7%) of the current contraceptive users in the study area were told none of the 4 basic contraceptive information, and another 41 (11.7%), 47 (13.5%), and 49 (14.0%) respectively were informed only one, two and three of the four basic contraceptive information necessary to inform every contraceptive user. This finding indicates that nearly half of the women who contacted an FP provider and received an MCM did not obtain the optimal level of FP information from service providers, suggesting a need to improve the quality of family planning counselling in the study area. Table 4.5 presents the health service and institutional characteristics.

Table 4.5 Health service and institutional characteristics (N=959)

Institutional characteristics	Category	Frequency	Percentage
Type of the health facility nearest to the respondent's residence	Public health post	546	56.9
	Public health centre	324	33.8
	Public hospital	22	2.3
	Private clinic	67	7.0
Time to reach the nearest health facility that provides MCM services	<30 minutes	629	65.6
	>=30 minutes	330	34.4
Visited HF at least once in the last 12 months	No	199	20.8
	Yes	760	79.2
HEWs visits respondent's household during the last 12 months	No	409	42.6
	Yes	550	57.4
FP counselling by HEWs during the last 12 months	No	424	44.2
	Yes	535	55.8
Participated in a FP education session in the last 12 months	No	461	48.1
	Yes	498	51.9
Possession of community health insurance	No	401	41.8
	Yes	558	58.2
Member of a community-based organisation (CBO)	No	613	63.9
	Yes	346	36.1

4.4.1.3 Community-level characteristics

The unit of analysis for community-level characteristics was the kebele/cluster. We defined neighbourhoods or clusters in this study based on the administrative boundaries of kebeles (the smallest administrative unit in Ethiopia). The study included 33 clusters, and in each cluster, 25 to 31 eligible women were successfully interviewed. Consistent with the higher rural-than-urban population proportion in Ethiopia, 84.5% of the clusters in this study were rural.

The cluster-level characteristics were derived by aggregating individual-level characteristics, and the aggregated values were categorised as “low” or “high” if the median values or the proportions of the cluster-level variables were below or above the overall average, respectively (see details in section 4.3.1.1.2 above). Accordingly, 18 (54.5%) of clusters were low women education attainment, 22 (66.7%) low women employment, 20(60.6%) low media exposure, 10 (30.3%) were with high proportion of other women with poor households 18 (54.5%) low women decision-making autonomy, 11 (33.3%) low proportion of other women attitude against wife beating, and 17 (51.5%) of clusters were low proportion of other women with favourable contraceptive social norm. Table 4.6 summarised the community-level socio-economic characteristics.

Table 4.6 Community-socio-economic characteristics (N=959)

Cluster-level variable	Category	Clusters/kebeles		Participants/women	
		Frequency	Percent	Frequency	Percent
Women education	Low	18	54.5	528	55.1
	High	15	45.5	431	44.9
Women employment	Low	22	66.7	639	66.6
	High	11	33.3	320	33.4
Proportion of other women with poor HH	Low	23	69.7	662	69.0
	High	10	30.3	297	31.0
Media exposure in the cluster	Low	20	60.6	587	61.2
	High	13	39.4	372	38.8

4.4.1.4 Societal level characteristics

4.4.1.4.1 Dimensions of women's decision-making autonomy

Women's household decision-making was computed from a four-item scale assessing women's participation in final say on their own health care, household purchases for daily needs, making large purchases, and visits to family or relatives. Accordingly, only 507 (52.9%) of the women participate in all four household decision-making dimensions and are therefore considered fully autonomous in household decision-making. The other 155 (16.2%) and 156 (16.3%) participate in only three and two of the decision-making dimensions, respectively, and nearly one in 10 women, 93 (9.7%), participate in none of the four household decision-making dimensions. Figure 4.4 shows the magnitude of women's decision-making participation status.

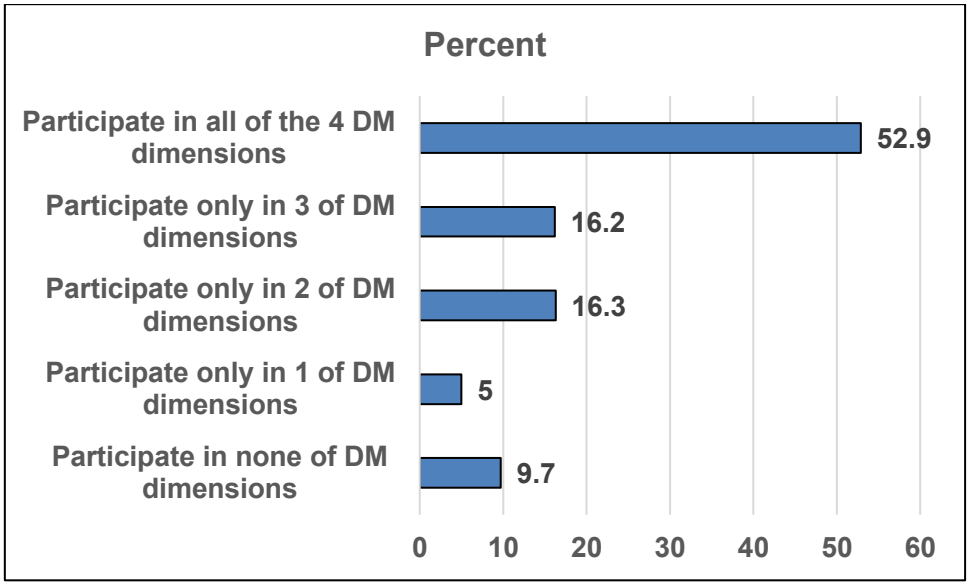


Figure 4.4 Dimensions of women's decision-making autonomy

In the current study context, full autonomy reflects a woman's ability to exercise control over both personal and economic aspects of her life without requiring exclusive permission from her husband or other family members. However, the finding that only 52.9% of women are fully autonomous reveals a significant gap in gender empowerment within the region.

The variation across decision-making dimensions is particularly meaningful. The highest participation is in health services (85.9%) and small purchases (82.5%), which align with women's traditional responsibilities for family care and daily management. In contrast, only 56.9% decide on large purchases/assets and 72.2% on travel/visiting relatives, suggesting autonomy is more constrained in major economic decisions and mobility dimensions culturally controlled by men due to traditional gender norms positioning men as primary economic decision-makers and mobility gatekeepers. This pattern indicates that women have gained some autonomy within traditional gender roles but remain constrained in domains that challenge established power structures. Nearly 10% of women participate in none of the four dimensions, underscoring persistent deep gender inequality where women have virtually no decision-making power.

The aggregate cluster-level analysis further strengthens the cultural relevance of the findings by showing that 55.2% of women live in clusters with low levels of women's autonomy, while 44.8% live in clusters with high levels of women's autonomy (Table 4.7). This clustering indicates that decision-making autonomy is not just an individual-level characteristic but is influenced by community-level norms and contexts, reinforcing the importance of the socio-ecological framework in understanding women's autonomy in the Bale Eco-region.

Table 4.7 Women's participation in household decision-making dimensions (N=959)

Women's household decision-making dimensions	Category	Frequency	Percentage
Make decisions alone or jointly to seek health services	No	135	14.1
	Yes	824	85.9
Make decisions alone or jointly on small purchases	No	168	17.5
	Yes	791	82.5
Make decisions alone or jointly to make larger purchases or sell	No	413	43.1
	Yes	546	56.9
Make decisions alone or jointly to travel and visit friends, relatives	No	267	27.8
	Yes	692	72.2
Cluster-level women's autonomy in HH decision-making	Low	529	55.2
	High	430	44.8

The four-item decision-making autonomy scale used in this study was based on instruments widely employed in the Ethiopian Demographic and Health Survey (EDHS) and other reproductive health studies, suggesting it has been validated for use in similar

Ethiopian populations. However, the cultural robustness of this scale for the Bale Eco-region specifically warrants consideration. The scale captures domains that are generally relevant across Ethiopian contexts, but its applicability may be influenced by local cultural norms, particularly in pastoralist communities, where decision-making patterns may differ from those in agrarian settings. The scale's strength lies in capturing personal (health care), economic (purchases, selling), and mobility domains, providing a comprehensive picture of women's autonomy. However, it may not fully capture culturally specific dimensions relevant in the Bale Eco-region, such as cattle management, community leadership, or traditional dispute resolution. Despite these limitations, the significant variation in decision-making participation across the four domains suggests that the scale is sufficiently sensitive to detect meaningful differences in women's autonomy within this population.

4.4.1.4.2 Dimensions of attitude towards wife beating

Attitudes towards wife beating: Attitudes towards wife beating were measured using a five-item scale assessing husband's justification for wife beating: (1) going out without telling partner, (2) neglecting the children, (3) arguing with partner, (4) burning food, and (5) refusing to have sex with the partner. Responses were measured on a 5-point scale: 5 (strongly disagree), 4 (disagree), 3 (neutral), 2 (agree), and 1 (strongly agree) to each statement (Table 4.8). Each woman's attitude scores across the five dimensions were summed, yielding a score ranging from 5 to 25. A higher score indicates a positive attitude opposing intimate partner violence (IPV). The overall median value of the attitude towards justification for wife beating was 12. On analysis of individual women's attitudes, 445 (46.4%) scored below the median (i.e., 12), while the remaining 514 (53.6%) scored at or above the median.

The finding that only 53.6% of women hold attitudes opposing wife beating reveals concerning persistence of gender-based violence norms in the Bale Eco-region. Nearly half (46.4%) still justify or are neutral toward wife beating under certain circumstances, indicating IPV remains culturally accepted in significant portions of the population, aligning with broader gender inequality patterns in Ethiopia where traditional norms position men as authority figures who can use discipline, including physical punishment, to control wives.

At the cluster level, the findings reveal important community-level variation in attitudes toward wife beating. Only 33.9% of women live in clusters with low attitudes against wife beating (where most women in the neighbourhood support justification for wife beating), while 66.1% live in clusters with high attitudes against wife beating (where most women do not support justification). This clustering indicates that attitudes toward IPV are not just individual-level characteristics but are strongly influenced by community norms and social contexts. The fact that two-thirds of women reside in neighbourhoods where IPV is generally opposed suggests that normative change towards rejecting gender-based violence is occurring, but the remaining one-third in low-attitude clusters represent pockets where traditional violence norms remain entrenched.

Table 4.8 below presents the participants' attitude towards wife beating.

Table 4.8 Dimensions of participants' attitude towards wife beating (N=959)

Dimensions of attitude towards wife beating	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
	Freq (%)	**Freq (%)**	**Freq (%)**	**Freq (%)**	**Freq (%)**
Husband can beat his wife for going out of the home without his permission	322 (33.6)	169 (17.6)	156 (16.3)	152 (15.8)	160 (16.7)
Husband can beat his wife if she argues with him	248 (25.9)	187 (19.5)	205 (21.4)	154 (16.1)	165 (17.2)
Husband can beat his wife if she neglects or fails to properly care for the children	279 (29.1)	213 (22.2)	199 (20.8)	120 (12.5	148 (15.4)
Husband can beat his wife if she burns food while cooking	276 (28.8)	214 (22.3)	174 (18.1)	131 (13.7)	164 (17.1)
Husband can beat his wife if she denies sexual intercourse	343 (35.8)	184 (19.2)	164 (17.1	85 (8.9)	183 (19.1)

4.4.1.4.3 Dimensions of the societal level contraceptive norm

Contraceptive social norm: Contraceptive social norm was measured as a composite variable from four items: (1) many women in the society use modern contraceptive methods (MCM); (2) religious leaders and other norm holders support MCM use; (3) most people in your social group (friends, parents, neighbours) support MCM use; and (4)

women who use MCM do not encounter sanctions or negative reactions from their social group. A value of 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree) and 5 (strongly agree) was given to the statement on contraceptive social norm (Table 4.9). Each woman's scores on the contraceptive social norm dimensions were summed, yielding a score ranging from 4 to 20. A higher score indicates a positive contraceptive social norm. The overall median value of contraceptive social norm was 12. The median value of the contraceptive social norm was computed for each cluster, and clusters were categorised as 1=High (clusters with a higher number of other women with a positive contraceptive social norm) and 0=Low (clusters with a lower number of other women with a positive contraceptive social norm).

About 502 (52.3%) of the women live in a cluster with fewer other women with positive contraceptive social norms, whereas the other 457 (47.7%) live in a cluster with more other women with positive contraceptive social norms. The finding reveals significant normative barriers to contraceptive adoption in the Bale Eco-region. Over half of the women (52.3%) reside in communities where supportive norms for MCM are limited, indicating that social acceptance of modern contraception remains a challenge in substantial portions of the population. This finding has important implications for contraceptive use, as social norms strongly influence individual decision-making through mechanisms of social pressure, perceived acceptability, and fear of sanctions.

Table 4.9 presents the dimensions of contraceptive social norm measurement among the study participants.

Table 4.9 Dimensions of contraceptive social norm (N=959)

Contraceptive social norm dimensions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
Many women in society use MCM	113 (11.8)	166 (17.3)	248 (26.0)	160 (16.7)	271 (28.3)
Religious leaders and other norm holders support the use of MCM	319 (33.3)	186 (19.4)	219 (22.8)	122 (12.7)	113 (11.8)
Most people in your social group (friends, parents, neighbours) support the use of MCM	152 (15.8)	190 (19.8)	226 (23.6)	167 (17.4)	224 (23.4)

Women who use MCM do not encounter negative reactions (sanctions) from their social group	236 (24.6)	208 (21.7)	182 (19.0)	119 (12.4)	214 (22.3)

4.4.1.5 Prevalence of modern contraceptive method (MCM) use

Out of the 959 married women who participated in the quantitative survey, 349 were using a modern contraceptive method during the data collection period. Based on the binary logistic regression result, the prevalence of MCM use among married women in the Bale Eco-region was 36.4% (95% Confidence Interval: 33.4%, 39.5%). Among these, 30.4% of the married women reported that they use MCM to space pregnancy, while the other 5.9% use MCM to limit childbirth. The magnitude of MCM use among married women in the highland, midland, and lowland strata of the study area was 41.5%, 39.7%, and 20.9%, respectively. Table 4.10 below describes differentials in MCM use by selected socio-demographic characteristics of the study participants.

Table 4.10 Modern contraceptive method (MCM) use (N=959)

Variable	Category	MCM Use		P-value
		Yes	No	
		Freq (%)	Freq (%)	
Age of respondent	<=24 years	92 (26.4)	132 (21.6)	0.002
	25-34 years	174 (49.9)	267 (43.8)	
	>=35 years	83 (23.8)	211 (34.6)	
Educational status of respondents	No schooling	61 (17.5)	297 (48.7)	0.000
	Primary (1-6)	126 (36.1)	196 (32.1)	
	2 years and above (>=grade 7)	162 (46.4)	117 (19.2)	
Religious affiliation	Muslim	158 (45.3)	462 (75.7)	0.000
	Non-Muslim	191 (54.7)	148 (24.3)	
Women Employment	Not employed	176 (50.4)	429 (70.3)	0.000
	Employed or make money	173 (49.6)	181 (29.7)	
Number of children alive	<=1 child	62 (17.8)	82 (13.4)	0.000
	2-4 Children	198 (56.7)	255 (41.8)	
	>=5 children	89 (25.5)	273 (44.8)	
Wealth Quantiles	Lowest	30 (8.6)	179 (29.3)	0.000
	Lower	34 (9.7)	76 (12.5)	
	Middle	85 (24.4)	163 (26.7)	
	Higher	77 (22.1)	97 (15.9)	
	Highest	123 (35.2)	95 (15.6)	
Knowledge of Respondent	Poor knowledge	115 (33.0)	368 (60.3)	0.000
	Good knowledge	234 (67.0)	242 (39.7)	

Husband education	No schooling	50 (14.3)	246 (40.3)	0.000
	Primary (1-6)	99 (28.4)	183 (30.0)	
	Secondary school	153 (43.8)	138 (22.6)	
	Above secondary	47 (13.5)	43 (7.0)	

P-values are from Pearson Chi-square tests for bivariate association

4.4.1.6 Modern contraceptive use method mix

The injectable contraceptive method was the major modern contraceptive method used by 242 (25.2%) of the contraceptive users, followed by the Implant method used by 68 (7.1%) of the users (Figure 4.5). This revealed that the modern contraceptive use method mix was dominated by the short-acting methods, while the method mix related to the more effective long-acting reversible contraceptive methods like IUDs (0.6%) was lower in the study area. This absolute method skew, towards injectables, over the most effective IUDs signals a critical system failure in providing Long-Acting Reversible Contraceptives (LARCs). The Bale Eco-region is currently a LARC desert, where women have virtually no access to the most effective, long-term contraceptive options despite their proven benefits for reducing unmet need and unintended pregnancy. This LARC gap strengthens the justification for the provider competence strategies proposed later in this thesis, which aim to train healthcare workers in LARC insertion and removal, improve supply chain reliability for IUDs, and address provider biases that may limit LARC availability.

Figure 4.5 illustrates the contraceptive method mix among married women who were using a MCM during the survey.

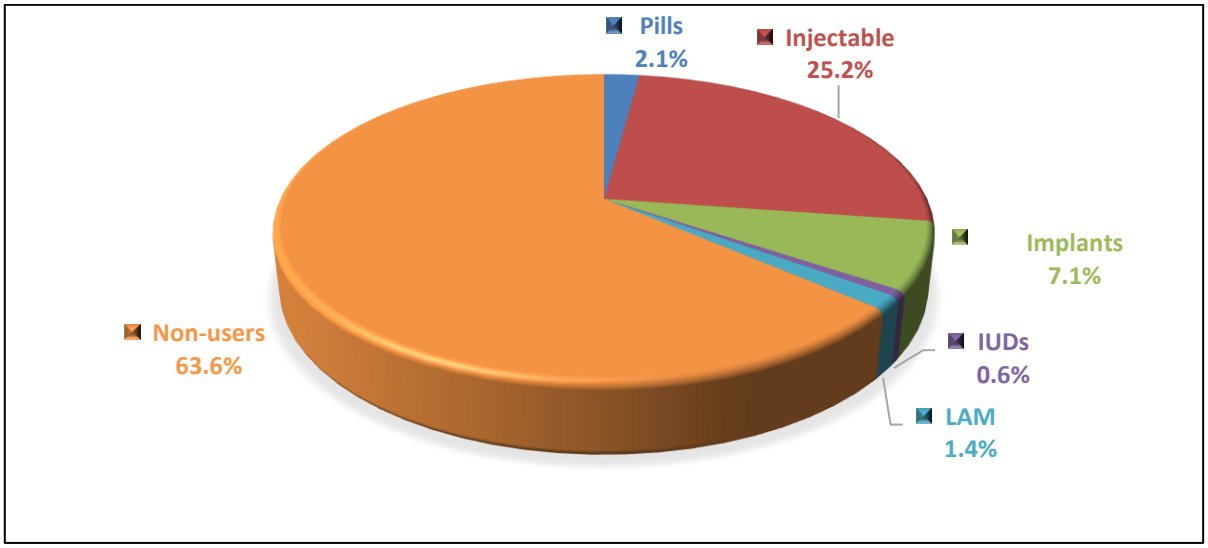


Figure 4.5 Modern contraceptive method use mix in Bale Eco-region

4.4.1.7 Reason for non-use of MCM by married women

Those married women who were not using modern contraceptive methods and were not currently pregnant (n=521) were asked for the reason/s for not using a method. The most reported reasons were religious prohibition (36.3%), fear of side effects (26.3%), respondent opposition (23.6%), and husband opposition (21.7%). These findings indicate that significant normative constraints, misconceptions about contraceptive safety, personal beliefs about fertility, and interpersonal barriers significantly influence the use of MCM in the Bale Eco-region. The study further explored the socio-cultural barriers qualitatively during Phase II to better understand them, and these were successfully translated into strategy development in Chapter 6 below.

Figure 4.6 shows the proportion of the major reasons for non-use of MCM in the study population.

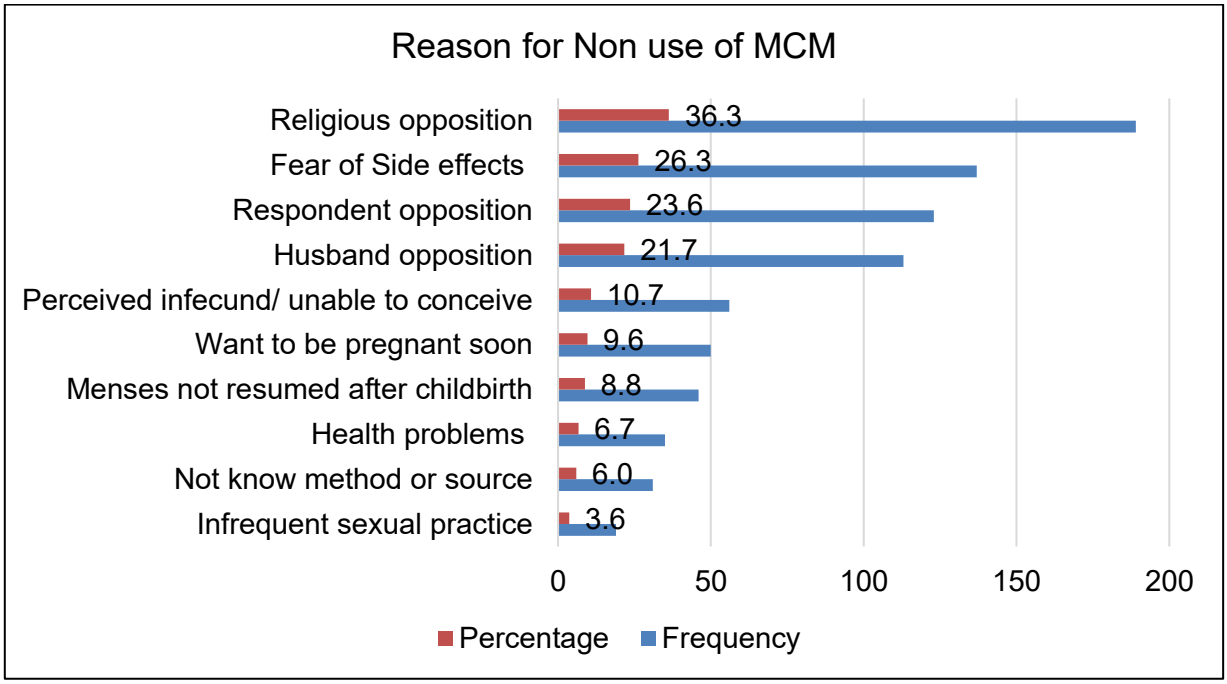


Figure 4.6 Reason for non-use of modern contraceptive methods

4.4.1.8 Prevalence of unmet need for MCM

The prevalence of unmet need for Modern contraceptive methods in the study population was 34.6% (95% CI:31.7%, 37.7%). The magnitudes of unmet need for spacing and for

limiting in the study population were 272 (28.3%) and 60 (6.3%), respectively (Figure 4.7). The analysis of unmet need by agro-ecological stratum showed a remarkable disparity, with the highest prevalence in the lowland stratum (44.2%), followed by the midland (35.5%) and highland strata (30.7%).

This finding indicates that over one-third of married women of reproductive age either want to delay pregnancy but are not using contraception (unmet need for spacing) or want to stop childbearing but are not using contraception (unmet need for limiting). This high prevalence reveals a significant gap between reproductive intentions and contraceptive behaviour in the Bale Eco-region.

The magnitude of unmet need for spacing (28.3%) was substantially higher than unmet need for limiting (6.3%), suggesting that most women with unmet need desire to delay pregnancy rather than stop childbearing entirely. This pattern indicates that fertility preferences in the Bale Eco-region incline toward continuing childbearing, but with longer intervals between births. The high unmet need for spacing has important implications for intervention strategy, as it suggests that women want to control the timing of pregnancy but face barriers preventing contraceptive use.

Figure 4.7 illustrates the prevalence and measurements of unmet needs for MCM among the study population in the Bale Eco-region.

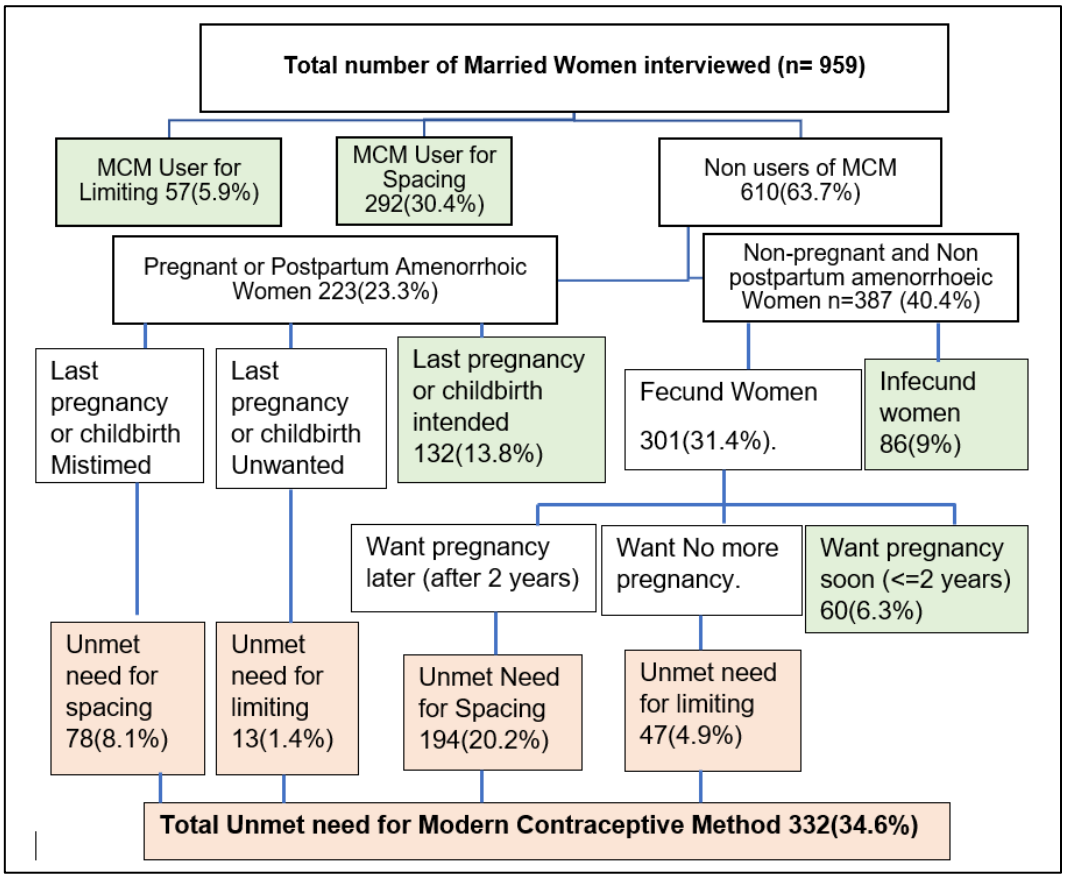


Figure 4.7 Proportions of unmet needs for MCM amongst married women in the Bale Eco-region

The magnitude of unmet need for MCM in the study population varies by the respondent's age, educational status, employment and respondent's religion. Table 4.11 describes the differentials in the proportion of unmet needs for MCM by selected socio-demographic characteristics of the respondents.

Table 4.11 Unmet need for MCM by socio-demographic characteristics (N=959)

Variable	Category	Unmet need		P-value
		Yes	No	
		Freq (%)	Freq (%)	
Age of respondent	<=4 years	59 (17.8)	165 (26.3)	0.003
	25-34 years	174 (52.4)	267 (42.6)	
	>=35 years	99 (29.8)	195 (31.1)	
Educational status of respondents	No schooling	171 (51.5)	187 (29.8)	0.000
	Primary (1-6)	109 (32.8)	213 (34.0)	
	>=grade 7	52 (15.7)	227 (36.2)	
Religious affiliation	Muslim	256 (77.1)	364 (58.1)	0.000
	Non-Muslim	76 (22.9)	263 (41.9)	
Employed women	Not employed	247 (74.4)	358 (57.1)	0.000
	Yes employed	85 (25.6)	269 (42.9)	

Number of children alive	<=1 child	22 (6.6)	122 (19.5)	0.000
	2-4 children	145 (43.7)	308 (49.1)	
	>=5 children	165 (49.7)	197 (31.4)	
Wealth Quantiles	Lowest	114 (34.3)	95 (15.2)	0.000
	Lower	32 (9.6)	78 (12.4)	
	Middle	95 (28.6)	153 (24.4)	
	Higher	48 (14.5)	126 (20.1)	
	Highest	43 (13.0)	175 (27.9)	
Husband education	No schooling	138 (41.6)	158 (25.2)	0.000
	Primary (1-6)	99 (29.8)	183 (29.2)	
	Secondary school	73 (22.0)	218 (34.8)	
	Above secondary	22 (6.6)	68 (10.8)	
Couple discussion	No	210 (63.3)	212 (33.8)	0.000
	Yes	122 (36.7)	415 (66.2)	
Perceived Partner support	No	179 (53.9)	155 (24.7)	0.000
	Yes	153 (46.1)	472 (75.3)	
Discussion with peer group	No	254 (76.5)	363 (57.9)	0.000
	Yes	78 (23.5)	264 (42.1)	

P-values are derived from Pearson Chi-square test

The magnitude of unmet needs in the Bale Eco-region varies widely across clusters, ranging from 10.0% in Chefedonsa kebele (urban) to 67.9% in Mendoyu kebele (remote rural), representing more than a sixfold difference. This substantial urban-rural gradient reveals that unmet need is strongly concentrated in specific geographic and socio-economic contexts. The urban kebele likely reflects better access to health facilities, higher education, greater media exposure and support, while the remote rural kebele suggests that geographic isolation, limited access, lower education, and entrenched traditional norms create compounded barriers.

Figure 4.8 below illustrates a colour map of the magnitude of unmet needs for MCM at the study-cluster level.

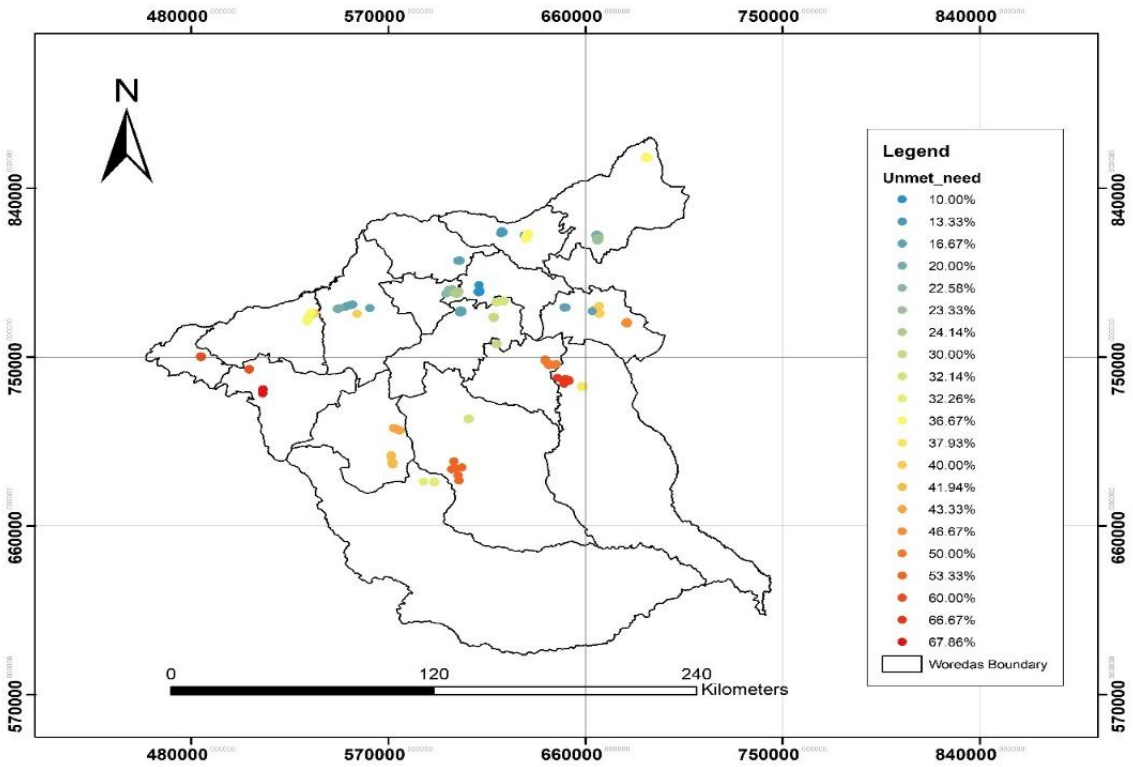


Figure 4.8 Map illustrating the magnitude of unmet need for MCM by study clusters

(Illustration developed by researcher)

4.4.1.9 Factors associated with modern contraceptive use

This section presents the between-cluster variance and the multi-level factors associated with MCM use, identified by analysing the quantitative data with a two-level mixed-effects logistic regression model.

4.4.1.9.1 Multi-level analysis models for modern contraceptive methods use

A two-level mixed-effect logistic regression analysis was used to analyse the fixed effects of factors at the individual and cluster levels. Three models were fitted sequentially: Model-1_{MCMU} (Null model with no predictors), Model-2_{MCMU} (individual-level variables only), and Model-3_{MCMU} (full model with both individual and cluster-level variables). This sequential approach allowed the study to assess how much variance each set of factors explained and how model fit improved.

The Null model (Model-1_{MCMU}) revealed a between-cluster variance) of 0.392, giving an Intra-class Correlation Coefficient (ICC) of “0.1065.” The ICC >0.05 confirmed that multi-

level modelling was appropriate, indicating that 10.7% of the total variance in MCM use odds was accounted for by kebele-level characteristics, with 89.3% by individual-level characteristics. Between-cluster variability declined from 10.7% in the Null model to 3.8% in Model-2_{MCMU} and 2.6% in Model-3_{MCMU}. The PCV for Model-2_{MCMU} was 0.6684 (66.8%), indicating individual-level factors explained 66.8% of between-cluster variance. The PCV for Model-3_{MCMU} was 0.7755 (77.6%), indicating that cluster-level factors explained an additional 10.8% of the variance.

The Median Odds Ratio (MOR) was 1.81 in the Null model (Model-1_{MCMU}), indicating moving to a higher-risk kebele increased median odds of MCM use by 81%. MOR declined to 1.41 (Model-2_{MCMU}) and 1.33 (Model-3_{MCMU}), confirming substantial but reduced cluster-level effects after including predictors. Model-3_{MCMU} had the lowest -2 Log Likelihood (4196.627) and AIC (4198.631) compared to Model-1_{MCMU} (-2 Log Likelihood: 4954.106, AIC: 4956.11) and Model-2_{MCMU} (-2 Log Likelihood: 4892.303, AIC: 4894.307), confirming it as the best-fitting model for reporting final adjusted associations (Table 4.12). These findings indicated significant kebele-level heterogeneity in modern contraceptive use.

4.4.1.9.2 Intrapersonal factors associated with MCM use

The odds of MCM use were higher among women with primary education (AOR=1.798; 95% CI:1.134-2.852) and secondary and above education (AOR=2.066; 95% CI:1.166-3.660) compared to those women who did not attend school (Table 4.12).

Women's employment was significantly associated with MCM use among the study population. Employed women were 1.6 times more likely to use MCM compared to non-employed women (AOR=1.609; 95% CI:1.100-2.351) in the Bale Eco-region.

Religious affiliation of the study participants was also found to be significantly associated with MCM use in the study population ($P < 0.05$). Non-Muslim religion followers were 1.5 times more likely to use MCM (AOR=1.537; 95% CI:1.017-2.321) compared to those who follow the Muslim religion (Table 4.12).

The number of live children the participant owns had a statistically significant association with MCM use in the study population ($P<0.05$). Women who had 2-4 alive children

(AOR=1.763; 95% CI:1.037-2.996) and women having >=5 alive children (AOR=2.391; 95% CI:1.220-4.685) were more likely to use MCM (P<0.05) compared to women who had only one or fewer alive children (Table 4.12).

The odds of MCM use were also higher among women with good knowledge (AOR=1.486; 95% CI:1.014-2.176) compared to those women who had poor knowledge.

Household wealth index was also among the predictors positively associated with MCM use in the study population. As the wealth index increases from the poorest to the richest, the odds of using MCM also increase. Those women in the upper 4^{th} and 5^{th} wealth quantile were more than two times more likely to use MCM (AOR=2.121; 95% CI:1.097-4.101) and (AOR=2.760; 95% CI:1.434-5.312) respectively (Table 4.12).

4.4.1.9.3 Interpersonal factors associated with MCM use

Partner's educational status and perceived partner's support for MCM use were among the interpersonal factors statistically associated with MCM use in the study population (P<0.05). Women having a husband with primary level education (AOR=1.657; 95% CI:1.018-2.698) and a husband with secondary level education (AOR=2.057; 95% CI:1.232-3.433) were more likely to use MCM.

The odds of MCM use were higher among those women with perceived partner support for MCM use (AOR=13.528; 95% CI:7.812-23.425) compared to those women with a perceived partner who does not support MCM use (Table 4.12).

4.4.1.9.4 Community-level factors associated with MCM use

Different cluster-level aggregate variables were computed in this study; however, only the community-level media exposure showed a statistically significant (P < 0.05) association with MCM use in the final model (Table 4.12). Those women who live in a cluster with a high level of media exposure were more likely to use MCM (AOR=1.919; 95% CI:1.131-3.258) compared to a woman who lives in a cluster with a low level of media exposure.

4.4.1.9.5 Societal-level factors associated with MCM use

The effect of societal-level factors, including women's decision-making autonomy, attitude towards wife beating, and place of residence, was assessed in this research. The intention behind investigating such societal-level factors is that a woman’s contraceptive behaviour is likely to be influenced not only by her own level of autonomy but also by the autonomy and attitudes of other women in her community, as well as by prevailing social norms. However, the analysis of these aggregate societal-level factors and MCM use in the final multi-level model did not reveal a statistically significant association (Table 4.12). This study didn’t find a statistically significant association between aggregate societal-level women's autonomy and MCM use in the study area. This could be explained by the coexistence of various factors within women’s socio-cultural environment, including social beliefs, norms, and expectations, which are explored using a qualitative approach as presented in the next chapter.

Table 4.12 presents the multi-level mixed effect model of factors associated with modern contraceptive method use among married women in the Bale Eco-region.

Table 4.12 Multi-level mixed effect logistic regression analysis of factors associated with MCM use amongst married women in Bale Eco-region, Ethiopia

Variable	Category	Frequency	Percent	Model-1 $_{MCMU}$	Model-2 $_{MCMU}$	Model-3 $_{MCMU}$
				AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Intrapersonal level factors						
Age of respondent	<=24 years	224	23.4		Ref	Ref
	25-34 years	441	46		0.924 (0.584-1.461)	0.933 (0.588-1.480)
	>=35 years	294	30.6		0.578 (0.320-1.044)	0.584 (0.321-1.064)
Educational status of respondents	No schooling	358	37.3		Ref	Ref
	Primary (1-6)	322	33.6		1.733 (1.099-2.732)*	1.798 (1.134-2.852)*
	>=grade 7	279	29.1		1.983 (1.137-3.456)*	2.066 (1.166-3.660)*
Religious affiliation of respondent	Muslim	620	64.7		Ref	Ref
	Non-Muslim	339	35.3		1.608 (1.084-2.384)*	1.537 (1.017-2.321)*
Employed women	Not employed	605	63.1		Ref	Ref
	Yes employed	354	36.9		1.558 (1.091-2.224)*	1.609 (1.100-2.351)*
Number of children alive	<=1 child	144	15		Ref	Ref
	2-4 children	453	47.2		1.702 (1.007-2.876)*	1.763 (1.037-2.996)*
	>=5 children	362	37.7		2.268 (1.165-4.415)*	2.391 (1.220-4.685)*
Wealth quantiles	Lowest	209	21.8		Ref	Ref
	Lower	110	11.5		1.660 (0.059-3.205)	1.731 (0.893-3.356)
	Middle	248	25.9		1.584 (0.890-2.818)	1.603 (0.890-2.889)
	Higher	174	18.1		2.039 (1.080-3.850)*	2.121 (1.097-4.101)*
	Highest	218	22.7		2.776 (1.489-5.175)**	2.760 (1.434-5.312)**
Knowledge of respondent	Poor knowledge	387	40.4		Ref	Ref
	Good knowledge	572	59.6		1.498 (1.031-2.176)*	1.486 (1.014-2.176)*

Variable	Category	Frequency	Percent	Model-1 MCMU	Model-2 MCMU	Model-3 MCMU
				AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Interpersonal level factors						
Husband education	No schooling	296	30.9		Ref	Ref
	Primary (1-6)	282	29.4		1.649 (1.015-2.678)*	1.657 (1.018-2.698)*
	Secondary school	291	30.3		2.002 (1.206-3.322)**	2.057 (1.232-3.433)**
	Above secondary	90	9.4		1.343 (0.659-2.738)	1.330 (0.648-2.730)
Perceived partner support	No	334	34.8		Ref	Ref
	Yes	625	65.2		13.229 (7.675-22.802)***	13.528 (7.812-23.425)***
Community-level effects						
Community women education	Low	528	55.1			Ref
	High	431	44.9			0.616 (0.316-1.198)
Women employment in the cluster	Low	639	66.6			Ref
	High	320	33.4			0.748 (0.464-1.206)
Media exposure	Low	587	61.2			Ref
	High	372	38.8			1.919 (1.131-3.258)**
Societal level effects						
Decision-making autonomy	Low	529	55.2			Ref
	High	430	44.8			1.142 (0.583-2.235)
Attitude of other women against wife beating	Low	325	33.9			Ref
	High	634	66.1			0.918 (0.485-1.738)
Place of residence	Rural	809	84.4			Ref
	Urban	150	15.6			1.031 (0.570-1.864)
Fixed level intercept (SE)				-0.598(0.1309)	-4.914(0.4562)	-4.965 (0.4630)
Random or cluster level variance				0.392	0.13	0.088
Proportion change in variance (PCV)					0.6684	0.7755

Variable	Category	Frequency	Percent	Model-1 MCMU	Model-2 MCMU	Model-3 MCMU
				AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Median odds ratio (MOR)				1.81	1.41	1.33
Intra-class correlation coefficient (ICC)				0.1065	0.0380	0.0261
Akaike information criteria (AIC)				4956.11	4894.307	4198.631
Bayesian information criteria (BIC)				4960.946	4899.15	4203.492
(-2 Log Likelihood)				4954.106	4892.303	4196.627

4.4.1.10 Factors associated with Unmet need for MCM

4.4.1.10.1 Multi-level analysis models for unmet need for MCM

To identify factors associated with unmet need for MCM, a multi-level mixed-effects logistic regression analysis was used, fitting three models sequentially: Model-4_{UMN} (Null model with no predictors), Model-5_{UMN} (individual-level variables only), and Model-6_{UMN} (full model with both individual- and cluster-level variables). This sequential approach allowed assessment of how much variance each set of factors explained and how model fit improved.

The Null model (Model-4_{UMN}) revealed cluster-level variance of 0.338, giving an ICC of 0.0932. The ICC >0.05 confirmed that multi-level modelling was appropriate, indicating that 9.3% of the total variance in unmet need odds was accounted for by cluster-level characteristics, with 90.7% by individual-level factors. ICC declined from 9.3% in the Null model to 4.0% in Model-5_{UMN} and 2.4% in Model-6_{UMN}. The PCV for Model-5_{UMN} was 0.595 (59.5%), indicating individual-level factors explained 59.5% of between-cluster variance. The PCV for Model-6_{UMN} was 0.760 (76.0%), indicating that cluster-level factors explained an additional 16.5% of the variance.

The MOR in the Null model was 1.74, indicating that women in high-unmet-need clusters were 74% more likely to have unmet need than those in low-unmet-need clusters. This confirmed substantial cluster-level effects. Model-6_{UMN} had the lowest -2 Log Likelihood (4209.227) and AIC (4211.231) compared to Model-4_{UMN} (-2 Log Likelihood: 4415.515, AIC: 4517.519) and Model-5_{UMN} (-2 Log Likelihood: 4465.581, AIC: 4467.585), confirming it as the best-fitting model for reporting final adjusted associations. These findings indicated significant kebele-level heterogeneity in unmet need for MCM.

4.4.1.10.2 Intrapersonal factors associated with unmet need for MCM

Education of women, employment, and number of children alive were the intrapersonal-level factors associated with unmet need for MCM in the final model ($P < 0.05$). Women having a secondary or postsecondary level of education have 39.1% less odds of having unmet need for MCM (AOR=0.599; 95% CI:0.363-0.987) compared to women who had not attended school. Similarly, the odds of having unmet need for MCM among women

who were employed were 0.537, indicating a 46.3% decrease (AOR=0.537; 95% CI:0.370-0.781) compared to those unemployed women.

The number of alive children was positively associated with unmet need for MCM (P<0.001). Compared to those women having one or fewer alive children, women having 2-4 alive children (AOR=2.930; 95% CI:1.614-5.318) and women >=5 alive children (AOR=4.419; 95% CI:2.248-8.688) had higher odds of unmet need for MCM (Table 4.13).

4.4.1.10.3 Interpersonal factors associated with Unmet need for MCM

Interpersonal-level factors, including partners' support for contraceptive use, discussion of contraceptive use with peer groups, and membership of the respondent in a community-based organisation (CBO), were found to be statistically significantly associated (P<0.05) with unmet need for MCM in the study population. The odds of unmet need for MCM were less among women whose partner supports MCM use (AOR=0.689; 95% CI:0.481-0.987).

Those women who discussed contraceptives among peer groups (AOR=0.691; 95% CI:0.480-0.995) and women having a membership in a community-based organisation (AOR=0.666; 95% CI:0.460-0.965) were less likely to have unmet need for MCM (Table 4.13).

4.4.1.10.4 Institutional factors associated with unmet need for MCM

Those women who were visited by a health extension worker during the previous 12 months were less likely to have unmet need for MCM (AOR=0.370; 95% CI:0.262-0.522), compared to their counterparts. The odds of having an unmet need for MCM were lower by 38.7% (AOR=0.613; 95% CI:0.437-0.861) among women who attended a FP education session as compared to those who did not attend a FP education session (Table 4.13).

4.4.1.10.5 Community-level factors associated with unmet need for MCM

Among the cluster-level aggregate variables assessed, cluster-level women's employment and cluster-level MCM use were found to be predictors of unmet need for

MCM, with statistically significant associations in the final multi-level model (P<0.05) (Table 4.13). Women who live in a high women employment cluster had a higher probability of having unmet need for MCM (AOR=1.798; 95% CI:1.060-3.050), compared to those women who live in a low women employment cluster. This could be because working women or employed women's desire or wish to postpone next pregnancies or limit childbirth before starting the use of an MCM, unlike those non-working or unemployed women who do not have extra pressure related to employment, may not be bothered much about spacing or limiting pregnancies.

Those women who live in a cluster with a high prevalence of MCM or in a community where most women use a MCM had 69.3% lower odds of having unmet need for MCM (AOR=0.307; 95% CI:0.126-0.744) compared to those women who live in a cluster with low prevalence of MCM use.

4.4.1.10.6 Societal-level factors associated with unmet need for MCM

Cluster-level women's decision-making autonomy, attitude towards wife beating, contraceptive social norm, place of residence and agro-ecological strata of the cluster were considered as proxy measures of societal-level factors reflecting the social and cultural status of the society. However, despite the clear implication of such societal-level socio-cultural influence on married women's behaviour towards fertility and contraceptive use, the quantitative data analysis of these societal-level factors didn't reveal a statistically significant association with unmet need in the final model (P>0.05).

Table 4.13 presents the multi-level mixed-effects model of factors associated with unmet needs for modern contraceptive methods among married women in the Bale Eco-region.

Table 4.13 Multi-level mixed effect logistic regression analysis of factors associated with unmet need for MCM amongst married women in Bale Eco-region, Ethiopia (N=959)

Variable	Category	Frequency	Percent	Model-4_{UMN}	Model-5_{UMN}	Model-6_{UMN}
				AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Intrapersonal factors						
Age of respondent	<=24 years	224	23.4		Ref	Ref
	25-34 years	441	46		1.252 ().796-1.969)	1.291 (0.811-2.057)
	>=35 years	294	30.6		0.546 (0.319-0.933)*	0.598 (0.342-1.045)
Educational status of respondent	No schooling	358	37.3		Ref	Ref
	Primary (Grade 1-6)	322	33.6		0.866 (0.601-1.247)	0.912 (0.626-1.330)
	Secondary school and above	279	29.1		0.524 (0.330-0.834)**	0.599 (0.363-0.987)*
Employed women	No	605	63.1		Ref	Ref
	Yes	354	36.9		0.599 (0.424-0.847)**	0.537 (0.370-0.781)**
Number of children alive	<=1 child	144	15		Ref	Ref
	2-4 Children	453	47.2		2.788 (1.551-5.013)**	2.930 (1.614-5.318)***
	>=5 children	362	37.7		4.389 (2.255-8.541)***	4.419 (2.248-8.688)***
Interpersonal factors						
Partner supports to use MCM	No	334	34.8		Ref	Ref
	Yes	625	65.2		0.626(0.441-0.888)**	0.689(0.481-0.987)*
Peer discussion	No	617	64.3		Ref	Ref
	Yes	342	35.7		0.703(0.493-1.003)	0.691(0.480-0.995)*
Member of CBO	No	613	63.9		Ref	Ref
	Yes	346	36.1		0.679(0.479-0.962)*	0.666(0.460-0.965)*

Variable	Category	Frequency	Percent	Model-4$_{UMN}$	Model-5$_{UMN}$	Model-6$_{UMN}$
				AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Institutional level factors						
Visited by HEW in the last 12 months	No	409	42.6		Ref	Ref
	Yes	550	57.4		0.407 (0.292-0.567)***	0.370 (0.262-0.522)***
Received FP education in the last 12 months	No	461	48.1		Ref	Ref
	Yes	498	51.9		0.627 (0.450-0.873)**	0.613 (0.437-0.861)**
Community-level effects						
Community-level women employment	Low	639	66.6			Ref
	High	320	33.4			1.798 (1.060-3.050)*
Community-level poverty	Low	662	69			Ref
	High	297	31			1.296 (0.601-2.796)
Community-level media exposure	Low	587	61.2			Ref
	High	372	38.8			1.216 (0.585-2.525)
Cluster level MCM Use	Low	446	46.5			Ref
	High	513	53.5			0.307 (0.126-0.744)**
Societal level effects						
Women autonomy	Low	529	55.2			Ref
	High	430	44.8			1.480 (0.790-2.775)
Contraceptive norm	Low	502	52.3			Ref
	High	457	47.7			1.499 (0.502-4.477)
Attitude of other women against wife beating	Low	325	33.9			Ref
	High	634	66.1			0.968 (0.524-1.790)
Residential place	Rural	809	84.4			Ref
	Urban	150	15.6			0.596 (0.322-1.100)
Agro-ecologic strata	Highland	410	42.8			Ref
	Midland	343	35.8			0.981 (0.607-1.584)
	Lowland	206	21.5			1.072 (0.539-2.133)

Variable	Category	Frequency	Percent	Model-4_{UMN}	Model-5_{UMN}	Model-6_{UMN}
				AOR (95% CI)	**AOR (95% CI)**	**AOR (95% CI)**
Fixed level Intercept (SE)				-0.673 (0.1231)	-0.024 (0.3237)	-0.103 (0.4338)
Community-level variance				0.338	0.137	0.081
Proportion change in variance (PCV)					0.595	0.760
Median odds ratio (MOR)				1.74	1.42	1.31
Intra-class correlation coefficient (ICC)				0.093	0.040	0.024
Akaike information criteria (AIC)				4517.519	4467.585	4211.231
Bayesian information criteria (BIC)				4522.356	4472.433	4216.091
(-2 Log Likelihood)				4515.515	4465.581	4209.227

4.5 QUALITATIVE DATA MANAGEMENT, ANALYSIS AND RESULTS

4.5.1 Qualitative data management: Phase II

Data management refers to the set of processes and strategies, such as organising, categorising, and proper levelling of the research data set, so that the researcher easily finds and uses the data when needed (Briney, Coates & Goben 2020:3).

In this study, qualitative data were collected from 10 March to 30 June 2022 through six Focus Group Discussions (FGDs) and nine key informant interviews (KIIs). Two FGDs and three KIIs were held in each of the three agro-ecological strata (highland, midland and lowland strata). The data from the FGDs and KIIs were well organised and password-protected, and the audio recordings and soft copies of the transcripts were securely stored on the researcher's personal computer and an external hard disk. Audio recordings, field notes, and transcripts were well organised and consistently named by type of qualitative data collection technique (e.g., FGD and KII), respondent category, and agro-ecological stratum (highland, midland, and lowland) of the study site where data were collected. Table 4.14 presents a systematically organised qualitative dataset by participant type, data collection method, and agro-ecological stratum.

Table 4.14 Qualitative data set organised by documents and document groups

S. No	Document	Document group
1	FGD – CUML – G 1	FGD MCM User Groups Midland Strata
2	FDG – CUHL – G 2	FGD MCM User Groups Highland Strata
3	FGD – CULL – G 3	FGD MCM User Groups Lowland Strata
4	FGD – CNULL – G 4	FGD MCM Non-Users Groups Lowland Strata
5	FGD – CNUML – G 5	FGD MCM Non-Users Groups Midland Strata
6	FGD – CNUHL – G 6	FGD MCM Non-Users Groups Highland Strata
7	I – HEWML – 01	KII HEWs Data Midland Strata
8	I – HEWML – 02	KII HEWs Data Midland Strata
9	I – HEWML – 03	KII HEWs Data Midland Strata
10	I - HEWLL – 04	KII HEWs Data Lowland Strata
11	I – HEWLL – 05	KII HEWs Data Lowland Strata
12	I – HEWHL – 06	KII HEWs Data Highland Strata
13	I – HEWHL – 07	KII HEWs Data Highland Strata
14	I – HEWHL – 08	KII HEWs Data Highland Strata
15	I – HEWLL – 09	KII HEWs Data Lowland Strata

4.5.2 Qualitative data analysis

Qualitative data analysis is an iterative process that follows general steps through preparing and organising the data set, followed by an initial exploration of the data through the coding process, where the short codes are used to represent sections of qualitative data descriptions, then related codes were grouped to form categories and qualitative themes that could be interpreted and presented using narrative and visual form (Creswell & Guetterman 2021:273).

In this research, the qualitative data analysis was initiated early during the data collection period. The audio recordings of each FGD and KII were repeatedly listened to, transcribed, and coding began by the researcher and an expert within 2 days of data collection. Coding is a process of transforming collected information or observation into a set of meaningful, organised categories (Mahawar 2020:4). In this research, the initial open coding was started after the first two FGDs and two KIIs and continued for every new data. Then, continued to capture a new-code log, recording every new code with its source transcript, date, and justification. The early initiation of the iterative coding process allowed the researcher to become familiar with emerging ideas and overall impressions of the qualitative data being collected from the different agro-ecological strata of the current research. This practice also enabled us to monitor the need to recruit more FGD and KII participants and track information saturation as a marker for determining the total number of FGDs/KIIs for the study. This process allowed us to build rich data within the inquiry process during qualitative data collection through approaching new informants until enough information is gained to answer the research question (Bos 2020:235).

The researcher treated saturation as an analytic decision defined by two criteria: code saturation (no new codes emerged during iterative coding of successive transcripts) and meaning saturation (no new concepts or contradictory information emerged from successive transcripts). Saturation was declared when two consecutive transcripts yielded no new codes related to the study aims, and for each subsequent transcript, analytic memos were noted linking to key codes and indicating whether the data were redundant or added conceptual depth through new information. Saturation was assessed separately for FGDs and KIIs in this research. In each stratum, after the 2nd FGD and 3rd KII, no new pertinent codes emerged, and no additional participants were recruited, despite a total of six FGDs and nine KIIs, due to logistical constraints. The transcripts

from the different agro-ecologies and participant types were saved with clear file names and organised for further analysis. These files, along with the new-code log, the codebook, and analytic memos by the researcher and a professional qualitative expert, were taken as an audit trail during the process.

Generally, this research employed a thematic data analysis guided by Tesch's 8-step technique, which is a structured method for identifying and organising patterns within qualitative data (Tesch 1990:85). The coding process in this research primarily followed an inductive approach, with topics and codes generated from the transcript itself rather than relying on predetermined categories, allowing themes to emerge organically from participants' perspectives.

However, a deductive element was incorporated in the final stage of interpretation, in which the agreed categories and sub-themes were organised and interpreted through the lens of the socio-ecological model, a pre-existing theoretical framework. Therefore, the qualitative data analysis approach applied in this research could be considered as a hybrid inductive coding and deductive framing approach, ensuring that findings are both grounded in the data and also logically connected to the broader theoretical construct (Jonathan, Dopke, Michaels, Martin, Ryan, McBride, Babington & Goulding 2021:4; Kaur et al 2025:3).

Table 4.15 summarises the application of Tesch's eight steps along with the corresponding outputs of each step in the qualitative data analysis of this research.

Table 4.15 Application of Tesch's eight steps for qualitative data analysis

Tesch's step	How it was applied in this study	Output
1 Get a sense of the whole	The researcher and an expert in qualitative research read one FGD and one KII transcript in full (no coding), noting general impressions and initial ideas about barriers, enablers of MCM use, and strategies.	Overall understanding of content and context; written initial notes.
2 Pick one transcript and ask, "What is it about?"	Each independently read the same FGD and KII transcript and wrote brief margin notes summarising what each meaningful segment of the qualitative data was about.	Descriptive notes on key issues in each segment.
3 Make a list of all topics	From the margin notes, each compiled a list of topics that repeatedly appeared (e.g., knowledge, decision-making, couple communication, peer influence, myths, norms, distance, infrastructure, counselling, method mix, empowerment, outreach, gatekeepers, multi-sectoral work).	Two topic lists generated separately.
4 Cluster related topics and form preliminary categories	Related topics were grouped and converted into broad, preliminary categories and subcategories, still descriptive.	Preliminary category structure.
5 Abbreviate topics as codes and apply to text	Preliminary categories were converted into short-code labels; each independently applied these codes to the same transcripts (one FGD, one KII).	Two preliminary code lists and coded transcripts.
6 Develop the final codebook	Code labels and meanings were refined through comparing the two code lists and coded segments, discussing, and resolving differences and similarities.	Final agreed codebook produced, with each code placed under a specific category.
7 Code the entire data set	Using the agreed codebook, the researcher coded all six FGDs and nine KIIs, consulting the expert when needed to ensure consistent application.	Fully coded data set.
8 Name and organise themes	Coded segments were examined within and across transcripts; related codes were grouped into broader themes and sub-themes, guided by the socio-ecological model.	Final thematic structure used for interpretation and integration.

(Tesch 1990:85)

4.5.3 Presentation of the qualitative findings

The qualitative data for this research were collected through six FGDs with married women and nine KIIs with health extension workers. These data were equally drawn from the highland, midland, and lowland strata, with two FGDs and three KIIs conducted in each stratum. Each FGD comprises 6-7 participants, resulting in a total of 38 married women (19 MCM users and 19 non-users). In addition, nine health extension workers participated in the KIIs, providing complementary insights into the barriers and enablers of MCM use in the Bale Eco-region.

To ensure anonymity, each participant was assigned a code that reflected their agro-ecological stratum, contraceptive use status, participant number, data collection technique, and group code. For example, “HLNU04, FGD G6” refers to a participant from the highland stratum (HL), a non-user of modern contraceptive methods (NU), participant number 04, who took part in a focus group discussion (FGD) within group six (G6). Similarly, “HEWLL-04-KII” represents a health extension worker (HEW) from the lowland stratum (LL), participant number 04, who participated in a key informant interview (KII).

In this section, the qualitative results, including the socio-demographic characteristics of the FGD and KII participants, the themes, sub-themes, and categories that emerged from the analysis of the qualitative data, are presented.

4.5.3.1 Socio-demographic characteristics of FGD and KII participants

The socio-demographic profile of participants included variables such as age, religion, educational status, marital status, number of children, occupation, and years of service for HEWs. These details are described below.

4.5.3.1.1 Age

The participants in the focus group discussions (FGDs) and key informant interviews (KIIs) were relatively young adults, aged 20 to 39 years. The age of most participants falls within their late twenties to early thirties. Fewer were in their early twenties (Table 4.16).

4.5.3.1.2 Educational status of the participants

Educational backgrounds of the study participants in the FGDs and KII varied considerably. Some participants had never attended school, while many had completed primary education. A smaller group had progressed to secondary schooling, and a few had attained higher qualifications, such as diplomas (Table 4.16).

4.5.3.1.3 Marital status

The marital status is presented in Table 4.16. All the women participated in the FGD, and two-thirds of the HEWs who participated in the KII were married, while a few were unmarried.

4.5.3.1.4 Number of children

The fertility status of the participants in the FGD indicated that more than one-third were grand-multiparous women with more than 7 children alive, and an equivalent proportion had 4-6 children alive. This indicates a high fertility norm among women in the study area with little or limited contraceptive use for space pregnancy (Table 4.16).

4.5.3.1.5 Occupations or main source of income

Livelihoods of the FGD participants were primarily rooted in rural economic activities. Agriculture and livestock rearing were the dominant sources of income, reflecting the community's reliance on farming and pastoral work. While all the KII participants receive their income from the government, they have a monthly salary as health extension workers (Table 4.16).

4.5.3.1.6 Duration of service year of HEWs participated in the KII

The HEWs who participated in the KII were asked about the number of years they served as health extension worker. The average number of service years among the HEWs who participated in the KIIs was 8.56 years. Table 4.16 presents the socio-demographic characteristics of the participants involved in the qualitative data collection.

Table 4.16 Socio-demographic characteristics of FGD and KII participants (n=47)

Variable	Category	Frequency	Percentage
Age of participants	20-24	9	19.15
	25-29	13	27.66
	30-34	15	31.91
	>=35	10	21.28
	Mean (+SD) age	29.62 (+4.99)	
Educational status	No schooling	11	23.40
	Primary school	21	44.68
	Secondary schooling	6	12.77
	Level 4 Diploma	9	19.15
Marital status	Married	44	93.6
	Not married	3	6.4
Number of children (n=38 FGD participants)	1-3 children	9	23.68
	4-6 children	15	39.47
	>=7 children	14	36.84
Source of income or occupation	Agriculture/farming	19	40.43
	Livestock	19	40.43
	Employment/salary	9	19.15
Number of service years (HEWs, n=9)	<=7 years	4	44.44
	>7 Years	5	55.56
	Average service year	8.56 years	

4.5.3.2 Themes, sub-themes and categories presenting the qualitative result

The focus groups were organised to reflect contraceptive use, with half involving married women currently using modern methods and the other half involving those not using them. Both FGDs and KIIs were carried out across the highland, midland, and lowland agro-ecological settings to ensure diverse representation. To maintain data integrity, strict management practices were followed. Audio recordings, field notes, and transcripts were securely stored, password-protected, and backed up on both a personal computer and an external hard drive.

All datasets were systematically labelled by method (FGD or KII), respondent category (users, non-users, or health extension workers), and agro-ecological stratum (highland, midland, or lowland). This structured approach ensured that the qualitative evidence remained organised, accessible, and reliable for analysis. With the data carefully managed, the analysis identified key themes and sub-themes that reflect the participants' lived experiences, perspectives, and contextual realities.

The qualitative findings were systematically organised into major themes aligned with the five levels of the socio-ecological model. From the FGDs and KIIs, a total of 89 codes were generated and subsequently clustered into 16 sub-themes. These sub-themes were then deductively consolidated into five overarching themes corresponding to the socio-ecological levels: (1) intrapersonal level aspects, (2) interpersonal level aspects, (3) community-level aspects, (4) institutional level aspects, and (5) policy and societal-level aspects.

Participants' narratives highlighted both enablers and barriers to modern contraceptive method (MCM) use, as well as factors contributing to the unmet need among women who expressed a desire to avoid pregnancy. These narratives were interwoven across the five levels, providing a nuanced understanding of the multi-layered influences on contraceptive decision-making. To ensure depth and authenticity, verbatim quotations offering thick description were incorporated, complemented by discussions that engaged with empirical evidence from the literature. Each quotation was linked to a participant code to safeguard confidentiality. Table 4.17 presents the qualitative themes, sub-themes and categories.

Table 4.17 Themes, sub-themes and categories of the qualitative findings

Themes	Sub-themes	Categories
1 Intrapersonal level aspects	1.1 Cognitive ability	1.1.1 Benefits of MCM use
		1.1.2 Misleading information
		1.1.3 Consequences of non-use
		1.1.4 Knowledge of MCM
	1.2 Self-determination	1.2.1 Individual agency
		1.2.2 Lack of decision-making
2 Interpersonal-level aspects	2.1 Interpersonal communications	2.1.1 Couple discussion
		2.1.2 Peer or family discussion
	2.2 Psychosocial support	2.2.1 Peer experience sharing
		2.2.2 Supportive husband
		2.2.3 Supportive relatives
	2.3 Psychosocial pressures	2.2.4 Supportive religious leader
		2.3.2 Peer pressure
		2.3.3 Relatives pressure
3 Community-level aspects	3.1 Community-level misconception	3.1.1 Side effects
		3.1.2 Misperceptions
		3.1.3 Myths
	3.2 Social norm	3.2.1 Descriptive norm
		3.2.2 Injunctive norm
		3.2.3 Gendered social norm

Table 4.17 Themes, sub-themes and categories of the qualitative findings

Themes	Sub-themes	Categories
4 Institutional-level aspects	4.1 Geographic accessibility	4.1.1 Bad topography
		4.1.2 Travel long distance
	4.2 Administrative accessibility	4.2.1 Programme challenges
		4.2.2 Poor Infrastructures
		4.2.3 Lack of service integration
	4.3 Information and counselling about MCM	4.3.1 Behavioural change communications
		4.3.2 Counselling
		4.3.3 Informed choice
	4.4 Provider's competence	4.4.1 Skill gap
		4.4.2 Compassionate and respectful care
		4.4.3 Refreshment training
	4.5 Method choice and supplies	4.5.1 Available methods and shortage of supplies
		4.5.2 Preferred methods
		4.5.3 Method shift or discontinue
5 Policies and societal level aspects	5.1 Women's empowerment	5.1.1 Women's education
		5.1.2 Employment and income generation
		5.1.3 Self-help groups
	5.2 Access and service quality	5.2.1 Improving health infrastructures
		5.2.2 Outreach programme
		5.2.3 Supply chain management
	5.3 Gatekeepers and change agents' engagement	5.3.1 Involve religious leaders
		5.3.2 Men-focused programme
		5.3.3 Community engagement platforms
	5.4 Multi-sectoral integration	5.4.1 Multi-sectoral approach
		5.4.2 Collaboration with CSOs

4.5.3.2.1 Theme 1: Intrapersonal level aspects

Table 4.18 below illustrates the first theme, reflecting intrapersonal-level factors influencing the utilisation of MCM by married women. The findings under this theme refer to intrapersonal-level aspects in general and indicate that women's contraceptive behaviours are shaped by the interplay between their cognitive understanding and level of self-determination. The qualitative results found women's cognitive ability and self-determination as the major sub-themes situated at the intrapersonal level.

- **Sub-theme 1.1: Cognitive ability**

This sub-theme explores how women's cognitive ability, comprising their understanding of the benefits of MCM use, exposure to misleading information, recognition of the

consequences of non-use, and acquisition of appropriate knowledge, influences the use of MCM. The four categories under this sub-theme demonstrate how awareness, fear, perception, and learning shape the dynamics surrounding MCM use in the study population.

- ***Category 1.1.1: Benefits of MCM use***

The study participants demonstrated substantial awareness of the advantages associated with MCM use. Women clearly articulated how effective child spacing enhances their physical and psychological well-being while improving outcomes for children.

For example, a woman described how effective spacing contributes to reduced physical and psychological strain on parents and better outcomes for children:

> "If I have only one baby, I can buy her clothes … but if they are three or four, I cannot afford … As my children are spaced well, they have good clothes, and I am not busy with their care." (HLMCMU01, FGD-CUHL-G2)

Women also highlighted improvements in maternal health recovery, child growth, and family economic stability under the benefits of MCM.

> "If she spaces them like four years apart, her health recovers … the baby grows well … and when the child reaches school age, it becomes strong enough." (LCU03, FGD-CULL-G3)

In addition, participants described how child spacing contributed to reduced stress and increased productivity within households:

> "The benefits for children, … grow in good condition, are well-educated, do not stress parents. Parents become able to effectively work in farming or business trading … the mother can work outside the home or on the farm without being stressed with caring for the children …" (HLMCMUO1, FDG-CUHL-G2)

The participants showed that they know the benefits of MCM use; however, they also receive misleading information, which they wrestle with as individuals. Hence, the following category focuses on misleading information.

- ***Category 1.1.2: Misleading information***

Despite understanding the benefits and advantages of MCM use, participants frequently encountered widespread misconceptions that undermined their confidence. Many women reported persistent community narratives describing oral pills, injections, implants, and IUDs as harmful.

> "I heard contraceptives affect health and make some women sterile. … when a woman repeatedly receives injectable method [Depo Provera], it makes her sterile." (HLMCMUO1, FDG-CUHL-G2)

A few participants shared stories circulating in the community that reinforced fears. One woman narrated a rumour about oral contraceptive pills "accumulating" inside the body:

> "I have a sister who… became ill and they [health workers] removed accumulated pills [Oral Contraceptive Pills] from her abdomen. … she took the pills for 10 years." (HLMCMUO3, FDG-CUHL-G2)

However, contrary to the above quotation, other participants in a different FGD reported that such information about pills accumulated in the uterus of women is not true.

> "I heard pills will accumulate inside the abdomen and affect the health of women, but I do not accept this because anything eaten through the mouth will come out of the body." (LLNU02, FGD-CNULL-G4)

Misconceptions also extend to IUDs, with some fearing uterine damage:

> "… They speak to me that it [IUD] will lead to a problem during removal; people say this and made me frustrated [laughing]. They tell me that it [IUD] damages my uterus, … it inverts my uterus. Right, I am still fearing this may happen to me." (HLMCMUO4, FDG-CUHL-G2)

Furthermore, diet-related misinformation constrained women's decisions related to MCM use. Many women believed contraceptives could be harmful without adequate nutrition:

> "… We heard that taking the three-month injectable method makes women ill, makes women thinner, hungry, and thirsty … We fear using and fear since we have no wealth." (HLNU04, FGD-CNUHL-G6)

These beliefs extended to the perceptions that MCM use requires special food and financial resources, and that one should not take an MCM as it might affect their health due to a lack of food to be received along with the contraceptive method.

> "… they cannot take it [contraceptive method] because it needs good nutrition, fruits, and good wealth is important. Many people become sick and seek treatment because of taking contraceptives with no adequate food." (HLNU01, FGD-CNUHL-G6)

The participants noted that such beliefs *"require good nutrition"* directly influence MCM discontinuation by many women:

> "Lack of adequate nutrition and household food availability are reasons that many women stated for discontinuing MCM; they think that MCM affect their health if they do not eat nutritious food." (HEWLL-04-KII)

Such misleading information creates cognitive struggle, which frequently results in MCM avoidance or discontinuation, exposing individuals to various forms of consequences that women described in the next category.

- ***Category 1.1.3: Consequences of non-use***

Participants narrated the consequences and challenges they faced due to non-use of MCM. They often mentioned the maternal and child health consequences resulting from closely spaced childbirth:

> "But if she became pregnant again within a one-year period … it would face undernutrition … the mother also possibly affected because of the pregnancy while caring for the small baby she has." (LLNU05, FGD-CNULL-G4)

They also indicated the physical, emotional, and socio-economic challenges placed on families:

> "According to our religion [Muslim], stopping childbirth is forbidden; I gave three closely spaced births … I carry one … the other in my abdomen, and I pull on foot the third one." (HLMCMUO2, FDG-CUHL-G2)

The broader societal implications of rapid population growth, including shortage of farmland, lack of job opportunities for the young generation and difficulty of feeding and providing care for closely spaced children, were mentioned:

> "As the number of people is increasing fast, everything is becoming difficult … getting a job and land are challenging the current generation … the new generation should use MCM." (HLMCMUO4, FDG-CUHL-G2)

These experiences underscored the importance of accurate knowledge and guidance in helping women avoid such consequences, leading to the descriptions in the next category.

- ***Category 1.1.4: Knowledge of MCM***

Participants consistently identified knowledge as a key enabler of MCM use. Women who had access to reliable information were more confident in planning their families and selecting appropriate MCM:

> "People who have experience and understanding due to participating in FP education … start using and space the first birth for three or four years … and get a baby according to their plan." (HLMCMUO3, FDG-CUHL-G2)

They also emphasised the role of counselling in reducing fear and correcting misinformation. Some women described how community attitudes shifted once accurate information was provided by health workers:

> "… after getting the understanding and due to the counselling, we get from the health workers in the health post, our fears gradually decreased, and most of us adopted the use of contraceptives." (LLCU02, FGD-CULL-G3)

Overall, this sub-theme demonstrates that cognitive ability plays a significant role in shaping women's decisions regarding MCM use. Women showed strong awareness of the benefits of spacing; however, their decision-making was often inhibited by pervasive misinformation that generated fear and uncertainty. The way participants presented multiple consequences of non-use of MCM reinforced the importance of accurate family planning knowledge, while counselling and health education emerged as powerful enablers that helped women overcome misconceptions. Overall, the findings indicated that cognition operates as both a facilitator and a barrier, highlighting the need for strengthened community education and counselling to support informed and sustained MCM uptake.

- **Sub-theme 1.2: Self-determination**

This sub-theme at the intrapersonal level explores women's personal agency and capacity for autonomous reproductive decision-making. It reflects how self-determination, expressed through independent action, confidence, and the ability to meet personal and familial needs, influences women's use of MCM. Across the qualitative descriptions, women's decision-making ability emerges both as a strong enabler and, when compromised, as a major barrier to MCM use.

- ***Category 1.2.1: Individual agency***

Many of the participants described individual agency as a central driver of MCM use. Women who exhibited autonomy, such as those who managed household resources, actively participated in social networks, or engaged in community groups, were more likely to acquire information, gain confidence, and independently use contraceptives. This autonomy enabled them to act based on perceived benefits rather than community expectations or their husband's approval.

One participant expressed this saying:

> "It is a woman who comes out of her house and shares an idea with other women in her social group who could know, accept, and use MCM. Those women who

know how to manage their household income are more likely to use FP." (MLCU01, FGD-CUML-G1)

The study found that women with strong decision-making agency were often able to continue using MCM despite criticism or social disapproval. Their narratives reflect a clear sense of personal responsibility and confidence in their own judgement. This is highlighted in the quote below:

> "There are many people who criticise us for using contraceptive methods, but it is me who knows the benefits it gives to me and my family. … It should be myself who should know my own beliefs … The decision is for the betterment of my own life." (HLMCMUO2, FDG-CUHL-G2)

Other participants described how observing positive outcomes among peers or relatives strengthened their tenacity to act independently. For instance, one participant highlighted how witnessing the tangible health and economic benefits of birth spacing among her siblings catalysed her own autonomous decision-making.

> "I decided myself and took an MCM … I saw how my sisters live better with good health having one or two children that are spaced apart … I decided and took a method, and my husband never confronted me. One can decide by just observing the benefit on others." (HLMCMUO1, FDG-CUHL-G2)

Some women narrated instances of making decisions first and informing their husbands later, emphasising their confidence in their personal agency:

> "I started the three-month injection … after I started using a method, I told my husband … and he said no problem." (LLCU04, FGD-CULL-G3)

Together, these findings highlight how women with stronger agency rely on personal reflection, observation, and self-determination to make reproductive choices, even in the presence of external pressures. On the contrary, the constraints women with limited agency encountered when it comes to MCM use are described in the next category.

- ***Category 1.2.2: Lack of decision-making***

In contrast, participants also described how limited autonomy, often rooted in early marriage, low exposure to information, or restricted life experience, hindered women's ability to decide on MCM use. Participants described that young women lacked the confidence and independence needed to act towards their own reproductive preferences. As noted by one of the health extension workers:

> "… we advise those women who are married under 18 years not to become pregnant soon, but due to lack of knowledge and experience, they do not accept the use of MCM. Some of them do not decide by themselves; they also fear the side effects of the methods …" (HEWHL-08-KII)

For some women, even when they understood the benefits of spacing pregnancy, their decisions were dependent on their husbands' willingness to initiate or approve MCM use. This was explained by one of the participants as:

> "In case I have the interest, my husband may not have the interest … If my husband permitted me, I would not deny it." (HLNU01, FGD-CNUHL-G6)

On the contrary, other women demonstrated that self-determination could override restrictive norms, including religious and social pressure. One participant stated it as:

> "Though they [Religion leaders] does not allow ... we use these methods according to science… I do not follow what people say … we use the methods and prevent closely spaced pregnancy." (MLNU04, FGD-CNUML-G5)

Several women also linked autonomy to women's education and awareness, explaining how knowledge strengthens decision-making capacity:

> "The well-educated women and those who are better known … the benefits can have the ability to decide for themselves … and usually waste less time while arguing with a resistant husband." (MLCU06, FGD-CUML-G1)

Some participants further argued that women should not simply rely on male approval, but actively negotiate and advocate for their reproductive well-being:

> “A woman, whoever she is, should convince her husband and use contraceptives … and convince him about the benefits.” (LLNU01, FGD-CNULL-G4)

These narratives explain that reduced autonomy limits women’s capacity to act on their reproductive health needs and choices, while self-confidence and determination empower them to pursue MCM use regardless of external constraints.

Overall, sub-theme 1.2 demonstrates that self-determination is a key intrapersonal factor influencing MCM use among married women in the Bale Eco-region. Women with strong agency expressed through independent decision-making, confidence, and active engagement in social and economic roles were more empowered to adopt and continue using MCM, even in the face of social criticism or restrictive norms. On the other hand, limited autonomy, often linked to early marriage and lack of knowledge, constrained women’s ability to make reproductive choices and increased reliance on husbands’ permission. These findings highlight the importance of strengthening women’s agency, confidence, and decision-making capacity to support informed and sustained uptake of modern contraceptive methods. The barriers and enablers of MCM that emerged from the qualitative data extended to the interpersonal level, as described in the next section.

4.5.3.2.2 Theme 2: Interpersonal level aspects

This theme captures the relational interactions and communication processes between women and the key people in their close social networks, including husbands, relatives, peers, neighbours, and religious leaders. These interactions shaped women’s reproductive decisions through three interconnected sub-themes: interpersonal communications, psychosocial support, and psychosocial pressures.

- **Sub-theme 2.1: Interpersonal communications**

This sub-theme corresponds to interpersonal communication, particularly between partners and within family or peer groups, which was consistently identified as a key influencer of women’s behaviour and attitude towards MCM use.

- *Category 2.1.1: Couple discussion*

Participants consistently mentioned that discussing with partners about the benefits of contraceptive use, the types of available methods and having a joint decision in using MCM was the main influencer of women's contraceptive use.

Participants highlighted the importance of joint decision-making, having discussions involving husbands for family planning:

> "Based on the agreement with your husband, you plan on the number of years to avoid another pregnancy. Planning on the way to support the baby to grow well and become independent …" (MLNU01, FGD-CNUML-G5)

One of the participants described how she discussed only with her husband without involving other people, which enabled her to secretly use MCM of her choice:

> "Due to challenges of closely spaced childbirth, my husband and I discussed and secretly went to a health facility, … because we have the information, and I used the pills for a while ..." (HLMCMUO2, FGD-CUHL-G2)

Participants reported that many women secretly start the use of MCM and later inform their husbands about their interest in spacing pregnancy or limiting childbirth. The experience of such women indicates that not all husbands oppose the use of the method:

> "… it was three months after I started using a method [MCM] that I told him [husband] … he agreed and … I continued using the method." (MLCU04, FGD-CUML-G1)

While spousal dialogue centred decisions within the household, participants also described how peer and family conversations helped normalise MCM use and extend accurate information beyond couples as presented in the next section.

- *Category 2.1.2: Peer or family discussion*

Beyond couple dialogue, everyday conversations with peers and family members were widely described as mechanisms that normalise modern contraceptive method (MCM) use, motivate first uptake, and sustain continued use. Participants showed a ripple effect

whereby one woman's experience flows through close ties, gradually shifting attitudes and behaviour.

Participants explained that women who had already tried a method often initiate supportive conversations, repeatedly encourage friends, and accompany them to services, which over time reduces hesitation and enables trial:

> "… in some cases a women who already started and saw benefits, go to her close friend ask her 'Let's go together to the HEWs,' requests to accompany her, some friends may resist for two or three rounds, but when repeatedly told the benefits in depth, can accept, go and sense the benefits, this one also shares the same to her other friend." (MLCU01, FGD-CUML-G1)

Although some topics are considered sensitive, women argued for pragmatic, future-oriented conversations with daughters that frame family planning as a protective strategy aligned with education and life transitions:

> "… though in our society discussing such issue between daughter and a mother is said shameful, … women should systematically discuss with their daughters." (MLCU01, FGD-CUML-G1)

Participants stressed that public conversations involving respected people such as religious leaders and elders helped reframe spacing childbirth using MCM as beneficial for households and society, thereby legitimising MCM:

> "Communication on the importance of spacing children's age on the family, society, and the environment in general in a form of dialogue among husbands, elders and religious leaders brought a behaviour change in FP." (HEWML – 01 - KII)

In several localities, peer/family talk was amplified through organised groups (e.g., VSLAs, development networks) that integrated FP topics, trained youth for peer-to-peer support, and broadened reach across villages:

> "The programme also organises women in self-help groups (VSLAs) and discussions on MCM integrated with the VSLAs. They trained youth, and peer-to-peer support among youth was facilitated. In addition to the HEWs, there are model

> women, youth, and religious leaders who promote MCM, and this facilitated the improvement of MCM use." (LLCU02, FGD-CULL-G3)

Participants linked peer-to-peer discussions in the clusters to diffusion of information and community-level attitude change:

> "We organised FP discussions incorporating youths, religious leaders, women and after the education, the women organised in a network of development army and started the discussions … then this community discussion reached every corner of the village … in such a way we learned the benefits of spacing pregnancy …" (MLCU02, FGD-CUML-G1)

These results demonstrate how peer/family communication serves as a social conduit via which experienced women support and link friends to service; reputable authorities openly support spacing; and local networks facilitate behaviour change towards MCM use. This is further supported by the level of psychosocial support women receive from those closest to them, as discussed in the next section.

- **Sub-theme 2.2: Psychosocial support**

Across discussions, psychosocial support from the husband, family members, relatives, close friends and religious leaders emerged as a critical enabler of MCM use. Such support offered moral legitimacy, reassurance, and practical encouragement, helping women initiate and sustain MCM use. The following categories illustrate the different ways this support influences women's contraceptive use.

- *Category 2.2.1: Peer experience sharing*

Close friends, neighbours, and women's social groups played a critical role in shaping attitudes toward contraceptive use. Through shared experiences and informal conversations, peers helped women gain awareness, dispel fears, and build confidence to seek services. The quotes below illustrate how peer dialogue fosters learning, encouragement, and practical decision-making. For instance, participants described how peers often urge one another to discuss family planning with their husbands and to seek services at health posts, particularly emphasising the advantages of spacing births.

> "We also inform them, 'Although you may not always accept our advice, please talk to your husbands and visit the health post to take family planning that helps you space pregnancy for at least two years.'" (HLMCMUO2, FGD-CUHL-G2)

Women learn from friends' lived experiences, especially during moments such as the return of menstruation, which peers frame as appropriate times to initiate contraception.

> "We often talk with close friends and advise them to go [to the health facility] when their menstrual period returns. They learn from our discussions and start taking contraceptives." (LLNU01, FGD-CNULL-G4)

Peer encouragement also helps women overcome fear and uncertainty, motivating them to visit health extension workers and adopt long-acting methods.

> "I asked a woman [her friend] which method she was using. I did not know about it at the time, and I was fearful. But after my friend explained it to me, I visited the health extension worker and took a long-acting method." (HLMCMUO4, FGD-CUHL-G2)

Women's self-help groups also serve as platforms for mutual support, where members collectively promote MCM uptake.

> "To improve this, we should continue supporting other women as friends and sisters during our self-help group meetings [afoosha]. We encourage them to understand the importance of MCM and help them receive contraceptives." (HLMCMUO1, FGD-CUHL-G2)

- *Category 2.2.2: Supportive husband*

Husband support emerged as another major factor that enabled women to use MCM. While some men initially resisted, many shifted their attitudes after observing the tangible benefits of birth spacing, including improved household well-being, healthier children, and reduced strain on resources. Additionally, religious leaders' guidance helped husbands and wives reconcile contraceptive use with religious beliefs, reducing hesitation and legitimising spacing practices. One of the FGD participants described it as quoted below:

> "Nowadays, men are understanding the advantage of their wife's active participation in productive work, as the cost of living is increasing from time to time,

> people start to realise the consequences of a large family and the difference between too many children and having few children well-spaced apart. This made some husbands interested in contraceptive use by their wives, though some others still had no interest in MCM use." (LLCU06, FGD-CULL-G3)

Sensitised religious leaders played an important role in reducing hesitation among husbands by clarifying the permissibility of spacing within local religious teachings. Their guidance helped normalise MCM use among women who were previously uncertain:

> "They [Religious leaders] advised the importance of spacing pregnancy at least until the previous baby breastfeeds for two complete years … spacing for some period is not forbidden per the Shariha law … There are wives of Sheks who use MCM … due to his [husband] support …" (HLMCMUO2, FDG-CUHL-G2)

Those husbands who understood and discussed the religious acceptability and have a better understanding tend to comfort and encourage their wives' contraceptive use:

> "In my case, while having my three children, it was my husband who asked me to start a contraceptive injection, but that time I did not accept him and did not use the injection. My reason was related to religious acceptability, but he [husband] encouraged me to use it." (HLNU03, FGD - CNUHL - G6)

While supportive peers and husbands play a critical role in fostering a positive environment for women's contraceptive decision-making, in socio-cultural contexts where extended family members hold significant influence, women also require encouragement and affirming attitudes from relatives. The next category explores how psychosocial support from sisters, mothers, and other family members further shapes women's pathways to initiating and sustaining MCM use.

- *Category 2.2.3: Supportive relatives*

The qualitative findings indicated that relatives, especially sisters, mothers, and extended family members, provided influential and trusted guidance. Their advice helped women transition from uncertainty to action, seek health services, and negotiate with partners. These interactions highlight the extended family's role in shaping reproductive decisions.

Sisters' firsthand experiences reassured women, encouraging them to visit health extension workers and use methods with confidence.

> "… I asked my elder sister, and she was using a method. She advised me to go to a health extension worker and get it. I started the three-month injection and continued every three months. After I began using a method, I told my husband, and he said it has no problem." (LLCU04, FGD-CULL-G3)

Mothers' guidance was especially powerful during stressful periods, helping women recognise the need for spacing, encouraging partner communication, and promoting the use of services.

> "My mother … said 'my daughter please don't stress yourself, please ask your husband and go to the health facility and use contraceptive.' … She [mother] said, 'the children are challenging you … you will be affected if you continue like this.'" (HLMCMUO2, FDG-CUHL-G2)

Together, these insights show that supportive voices within women's close networks help legitimise MCM use, demonstrate its practicality, and transform hesitation into action. However, alongside these enabling influences, participants also described powerful countervailing forces including opposition, stigma, and interpersonal gatekeeping that can stall or reverse women's progress toward consistent use. The next sub-theme examines these psychosocial pressures and their implications for women's autonomy and continuity of MCM use.

- **Sub-theme 2.3: Psychosocial pressures**

Sub-theme 2.3 captures the psychosocial pressures that women faced from husbands, peers, and relatives, which often constrained their autonomy to use modern contraceptive methods. Participants explained that these pressures were rooted in prevailing gender norms, community expectations, and family beliefs that prioritised fertility and reinforced male authority. Across all discussion groups, women consistently described such relational pressures as some of the most significant barriers to initiating or sustaining MCM use.

- *Category 2.3.1: Husband's influence*

Across all agro-ecological settings, participants also consistently identified husbands as the primary source of pressure discouraging women from using modern contraceptive methods in the study area. Women explained that many husbands opposed MCM use, grounded their authority in their role as financial providers, and restricted opportunities for discussion or negotiation. One participant described how such opposition forced many women in her community to discontinue use:

> "I personally use it with an agreement with my husband, but that was not the case with other women in my neighbourhood. Many women who have six or seven children complain that their husbands do not agree with MCM use. They tell us, the husband denies them by saying it is him who buys everything for his children … Many were forced to stop contraceptive methods …" (HLMCMUO2, FDG-CUHL-G2)

In addition to direct prohibition, women noted that lack of confidence to negotiate with their husbands further limited their ability to act on their reproductive preferences:

> "It is the husbands that limit women's decisions, and we as women can discuss with other women, but are not confident enough to convince husbands." (HLNU03, FGD-CNUHL-G6)

Some participants described situations in which husbands' authority was so absolute that communication was effectively closed off, leaving women with no option but to continue having repeated pregnancies:

> "In such a way, if the husband becomes serious and closes the possibility of discussion or negotiation with his wife, she [wife] fears MCM use without his permission and gives birth to three or four children." (HLMCMUO3, FDG-CUHL-G2)

Beyond husbands, participants also reported experiencing additional pressures from peers and neighbours, who framed contraceptive use in moral, behavioural, or reputational terms, further constraining women's autonomy.

- *Category 2.3.2: Peer pressure*

Participants reported that interactions with peers and women in their neighbourhoods often carried judgmental undertones. Some peers interpreted contraceptive use as a sign of improper behaviour, undermining women's dignity and discouraging use.

One participant described how users were publicly shamed:

> "You wish to wander here and there; that is why you took a contraceptive injection. … some women try to shame us [contraceptive users]. These are people in our neighbourhood." (HLMCMUO2, FDG-CUHL-G2)

Such comments reflected a broader moral narrative that equated MCM use with irresponsibility or deviation from expected gender roles. Similar pressures also stemmed from relatives, both the women's family and her husbands', who reinforced expectations of fertility and influenced husbands' decisions, as discussed in the category presented below.

- *Category 2.3.3: Relatives pressure*

Participants also described how relatives played a significant role in shaping reproductive expectations and limiting women's autonomy to use MCM. Relatives from both the woman and the husband's family were seen as reinforcing continuous childbearing to maintain clan size, preserve patriarchal authority, and influence husbands' decisions.

Women reported that relatives often instigated mistrust by implying that a woman who uses MCM may become disobedient or leave her marriage. As one participant explained:

> "They [relatives] say, 'unless she continues giving childbirth, the wife could disrespect him and leave him … go somewhere.' In such a way, the husband becomes suspicious and closes the possibility of discussion and negotiation with his wife …" (HLMCMUO3, FGD-CUHL-G2)

Others described how relatives actively discouraged husbands from accepting family planning, warning that granting permission would weaken their authority or jeopardise their marriage:

> "Despite the wish of the women to use CM, there are situations where other family members frustrate a husband so that the wife may leave the husband if she uses an MCM. They say, 'this woman may disrespect and leave you …" (HLMCMUO3, FDG-CUHL-G2)

These narratives highlight that relatives acted as gatekeepers, reinforcing gendered expectations and discouraging contraceptive use despite women's preferences.

Overall, psychosocial pressures from husbands, peers, and relatives created a relational environment in which the use of MCM was often contested, monitored, or discouraged. These pressures were deeply tied to shared beliefs about fertility, female behaviour, and household authority. Through these mechanisms, interpersonal networks limited women's capacity to negotiate contraceptive use, reinforced fear of stigma, and contributed to continued unmet needs for MCM. These narratives illustrate how relatives functioned as gatekeepers, reinforcing gendered expectations and amplifying husbands' control over contraceptive decisions. Such pressures contributed to an environment in which women's use of MCM was closely monitored, contested, or discouraged.

While interpersonal relationships shaped women's immediate experiences with MCM use, participants also highlighted broader community-level influences that shaped attitudes, constrained choices, and reinforced patterns of non-use that are presented in the next section.

4.5.3.2.3 Theme 3: Community-level aspects

Theme 3 captures the community-level aspects that influence married women's modern contraceptive method (MCM) use within the Bale Eco-region. Participants emphasised that misperceptions, entrenched beliefs, myths, and prevailing social norms were among the most powerful community-driven obstacles hindering adoption.

Across the FGDs and KIIs, women and health extension workers described how unfounded rumours, misinterpretations of religious teaching, and deeply rooted cultural norms at community level constrained women's ability to realise their reproductive intentions and access the MCM of their choice. Incorrect religious beliefs and widely circulating myths, particularly those framing MCM as harmful, forbidden, or socially inappropriate, were frequently cited as the primary reasons for non-use of MCM among women with unmet need for contraception.

- **Sub-theme 3.1: Community-level misconception**

Participants across the highland, midland, and lowland agro-ecological strata consistently described community-level misconceptions about side effects, misperceptions, and myths as salient barriers to MCM use. These misconceptions were often rooted in distorted religious interpretations, exaggerated accounts of side effects, and stories that framed MCM use as physically harmful or spiritually unacceptable. Even women who desired to delay or prevent pregnancy reported that these community narratives weakened their confidence and shaped their perceptions of risk.

- *Category 3.1.1: Side effects*

Participants described both experienced and perceived side effects as influential drivers of discontinuation and avoidance. Women who had personally experienced discomfort often stopped the method, which subsequently contributed to unintended pregnancies. One participant explained:

> "Pills burn the epigastric area, increase saliva, sometimes nauseating, that I gave up and stopped, due to these side effects I got pregnant once. Though I haven't taken the three-year and ten-year methods, I heard some side effects from other women." (HLMCMUO3, FDG-CUHL-G2)

Rumours related to menstrual irregularities associated with injectables and implants also discouraged use:

> "Some women fear the three-month injection because it disturbs the menstrual cycle… Some totally miss their period, and others say the three-year implant increases bleeding." (MLNU01, FGD-CNUML-G5)

Even when intending to continue, some women expressed concerns about adverse bodily responses:

> "My intention was to continue the three-month injection, but I complained it makes me dizzy and increases my tiredness." (HLMCMUO4, FDG-CUHL-G2)

Beyond side effects, participants described a deeper layer of misperceptions and beliefs that were not based on direct experience but on circulating narratives within the community, as stated in Category 3.1.2 below.

- *Category 3.1.2: Misperceptions*

Women reported several communities held misconceptions about the purpose and health consequences of MCM. A common belief or misperception was that initiating contraception before a first birth causes permanent infertility:

> "I heard it makes women infertile, especially if taken before the first childbirth … people also say it is sinful and God punishes for it." (LLNU04, FGD-CNULL-G4)

Rumours about implants "moving" inside the body, becoming lost, or causing paralysis were also widespread misconception in the community where this study was conducted:

> "They say the implant weakens the hand and can cause paralysis … it may move into the body and get lost; during removal flesh grows over it and it cannot be found." (HLMCMUO4, FDG-CUHL-G2)

Some women described persistent fears related to IUD use that continued even after adoption of its use by some women:

> "They tell me the IUD damages the uterus or makes it invert. I am still fearing this may happen to me." (HLMCMUO4, FDG-CUHL-G2)

In some cases, community fears outweighed even supportive spousal dynamics. One participant declined her husband's encouragement due to religious concerns:

> "It was my husband who asked me to start a contraceptive injection, but I did not accept. My reason was that God will not accept my action, and I feared the use." (HLNU03, FGD-CNUHL-G6)

Service providers emphasised the need for community-wide engagement to counter these narratives:

> "In the community, there are bad attitudes based on misconceptions and fear of side effects. Unless such attitudes are broken, the use of long-acting methods will not improve; we need to work with religious leaders, role-model women, and development agents." (HEWHL-KII-07)

Beyond misperceptions, participants also described more deeply moralised myths that framed MCM use as spiritually dangerous, including fears of punishment in the afterlife. The deeply moralised myths that emerged from the study are described in the next section.

- *Category 3.1.3: Myths*

Participants across settings described myths that connected MCM use, particularly implants and injectables, to spiritual punishment or divine retribution. One recurring narrative involved post-mortem suffering for women buried with implants:

> "People talk about a woman who died while using an implant … they say she shouts in the grave each night as God punishes her due to the contraceptive in her body." (HLNU02, FGD-CNUHL-G6)

Beyond this, some respondents described doctrinal interpretations equating contraceptive use with grave sin, including analogies to homicide. One participant explained a locally prevalent calculation that equates three doses of injectable contraception (i.e., nine months of pregnancy prevention) with the taking of a life:

> "Taking 3 doses of contraceptive injection [Depo Provera injection] is considered as killing of one person … a woman who received three doses of injectable

> contraceptive [equal to nine-month pregnancy prevention] is considered as if she killed one person …. It is equivalent to one person's life, because a person is born within nine months of pregnancy." (HLNU06, FGD-CNUHL-G6)

This specific myth, equating three injectable doses covering nine months of protection with the gestation period, represents a unique, locally rationalised moral barrier not commonly reported in other settings. Composite mythic stories circulated widely in the study communities, reinforcing fear and moral hesitation as the barrier of MCM use. Another participant shared:

> "… there was a girl who used injectable contraceptives for nine years. Later she died and was buried. People say her grave shouted at night … a religious man asked why, and she replied God punished her because of her contraceptive use … Such stories frustrate women from using MCM." (HLMCMUO2, FDG-CUHL-G2)

Some women clearly demarcated the main reason for the non-use is mainly the myths (fear of religious misconduct) rather than the psychosocial pressure. One of the FGD participants presented the reason for non-use of MCM as:

> "My fear is related to God's concern. Religious acceptability. I do not fear what other people talk about me." (HLNU04, FGD-CNUHL-G6)

These myths rooted in spiritual idioms and amplified through oral transmission created a moral condition in which MCM use was perceived as spiritually dangerous, even when women wished to avoid pregnancy. This moral framing explains why religious prohibition emerged as the leading reason for non-use (36.3%) in the quantitative findings of this study, as it transforms contraceptive use from a health decision into grave sin equivalent to homicide, making it resistant to standard health education. The myths shaped women's risk perceptions, heightened fears of religious transgression, and constrained autonomous decision-making, overriding personal desire to prevent pregnancy even when partner dynamics were supportive. Addressing this barrier requires engaging religious leaders to reframe the moral narrative and provide alternative doctrinal interpretations that separate contraceptive use from moral transgression, while simultaneously providing information about contraceptive safety.

In addition to misconceptions, participants described broader social norms including gendered expectations, attitudes toward wife beating, and community-level norms surrounding contraceptive use that further influenced how women navigated their reproductive choices. These are explored in Sub-theme 3.2.

- **Sub-theme 3.2: Social norm**

Social norms, implicit behavioural rules that define what is “normal” and “acceptable” within a community, were central to participants' understanding of contraceptive behaviour. In this study, descriptive norms were reflected in the perceived prevalence of MCM use in the cluster, while injunctive norms were reflected in the perceived approval or disapproval of peers, elders, and religious leaders. Across groups, participants perceived low descriptive norms (few women visibly using MCM) and restrictive injunctive norms (anticipated disapproval), both of which discouraged uptake. Additionally, the social norm dynamism in this study incorporated societal-level acceptability of wife beating as a proxy indicator of social norm.

- *Category 3.2.1: Descriptive norm*

Many participants believed only a small proportion of married women in their communities used MCM, pointing to the visible close spacing of children as evidence:

> “In my view, it is not many, only a few women are using MCM … We can see this in the age of the children they carry … Many children are closely spaced.” (HLMCMUO2, FDG-CUHL-G2)

Another woman in the same group complemented the thought that the number of women who use MCM was very limited, where women simply give childbirth:

> “… as my friend said, the majority of women are the ones who simply give childbirth without trying contraceptives.” (HLMCMUO3, FDG-CUHL-G2)

However, there are also some participants who perceived that the number of MCM users in the community increased in recent days, bringing a favourable social norm condition for women initiating MCM use:

> "Previously, very few were using MCM, but recently it changed. Because in every village education is given to women and many women were asking for contraceptive injection due to improved understanding. They want to space until the baby crowns." (LLCU06, FGD-CULL-G3)

Although there are recent improvements in the number of MCM users in society, the findings of this study revealed that many participants believed only a small proportion of married women were using MCM. This perception reflected an unfavourable descriptive norm, which contributes to discouraging contraceptive use among married women in the Bale Eco-region.

Descriptive norms were assessed through participants' perceptions of how many women in their neighbourhood use modern contraceptive methods (MCM), while injunctive norms were gauged by their perceptions of how people in their surroundings view or react to MCM use also appears to be a barrier, as discussed in the section that follows.

- *Category 3.2.2: Injunctive norm*

Furthermore, the perception of the study participants about what other people, including peers, elders, and religious leaders, think about a woman who uses a MCM was used to estimate injunctive contraceptive social norm. Accordingly, most study participants feel that people in their social networks do not view their MCM use positively. It was noted that most women secretly use MCM as a coping mechanism or a measure to avoid social discrimination or criticism by other people. Therefore, such injunctive contraceptive social norm impedes married women's ability to use MCM regardless of their fertility choice.

Participants reported anticipated disapproval from peers, elders, and religious leaders, which encouraged secrecy of MCM use by women to avoid stigma or criticism:

> "… due to fear of criticism … we do not want to tell our secret … we just know each other secretly … Stigmatisation and shamefulness are the main fear." (MLCU02, FGD-CUML-G1)

Participants across the different stratums of this study uncovered that having elderly people in the women's family encourages childbearing regardless of the woman's fertility preference, exposing her to risks of unintended pregnancies:

> "But the presence of elders in the family, the fear arises and the women fail to use a method despite her wish to postpone pregnancy and continue giving birth." (HLMCMUO3, FDG-CUHL-G2)

> "On this issue, in fact, our parents never support our MCM use. They complain that it is the will of God who grows a child, saying they have too many children without any problems, and that this is the principle we should all live by. They advise us not to use." (LLCU02, FGD-CULL-G3)

The findings also explored that criticisms from other people are not constant and often could change gradually if the woman started using:

> "The first time, those closer to us, be it parents, friends, relatives, criticise us. But as we continue using a MCM and start showing the benefits, including spacing the age of our children, improvement in our health status, and economic advantage, they start to support our action." (LLCU05, FGD-CULL-G3)

The finding above suggests the importance of addressing social norms in the specific societal context to improve the utilisation of MCM by all women who want to prevent pregnancy. Understanding social norms surrounding contraception helps not only comprehend how these norms influence people's views and actions regarding contraception but also the more general concerns of gender inequality and reproductive rights within the particular social setting. The section below presents the gendered norm (gender-based violence via acceptability of wife beating in certain circumstances) as a proxy indicator for contraceptive social norms in the society.

- *Category 3.2.3: Gendered social norm*

To investigate gendered norms that might restrict married women's use of an MCM, this study additionally explored participant perceptions of acceptability of gender-based violence and wife-beating in society. Most explanations reflected normative acceptance

of male authority over sex and reproduction, with violence framed as justified in specific situations.

For instance, the quote from one of the FGD participants below claimed that it is normal or acceptable for a husband to beat his wife if she declines his request for sexual intercourse and that a woman does not have the freedom to forbid her husband from having sex with her.

> "Denying … sexual intercourse is an acceptable reason to be beaten by her husband… she has no right to reject." (MLNU03, FGD-CNUML-G5)

> "… If she denies sex, it is acceptable for her husband to beat her, because it is suspected that she satisfied her sexual interest somewhere else." (MLCU02, FGD-CUML-G1)

One of the participants also reflected on the justification for wife beating, indicating a husband should not beat his wife for minor disagreements:

> "… unless they have a strong disagreement on something, he [husband] should not beat her for a silly thing, unless it is something that disturbs their relationship." (LLNU01, FGD-CNULL-G4)

Together, low perceived prevalence, anticipated disapproval, gendered acceptance of male control and violence, and religiously anchored concerns created a normative environment that discouraged visible, confident MCM use in the study area and incentivised secrecy, further limiting diffusion of accurate information and positive modelling.

Theme 3 shows that community-level misconceptions and restrictive social norms jointly set the climate for decision-making, but whether intentions translate into action depends on how institutions organise, staff, equip, and deliver services; hence Theme 4 focuses on the service environment that enables or constrains MCM use.

4.5.3.2.4 Theme 4: Institutional level aspects

The theme, “Institutional level aspects,” which comprised mainly dimensions of accessibility and FP services quality, emerged during the analysis of the FGD and KII data in this study. The findings revealed unequal distribution and inconsistent accessibility of quality FP services as barriers to MCM use among married women across all three agro-ecological strata, namely highland, midland, and lowland in the Bale Eco-region.

Findings clustered under five interrelated sub-themes: geographic accessibility, administrative accessibility, information and counselling, providers’ competence, and method choice and supplies. Together, these dimensions explain how service readiness and delivery shape initiation, continued use, or switching of MCM based on clients' informed choice.

- **Sub-theme 4.1: Geographic accessibility**

Physical access to health facilities that provide quality FP services was influenced by terrain, settlement dispersion, and travel distance. Bad topography, dispersed settlement patterns and long travel distances to facilities offering contraceptive services affected both first contact and timely follow-up of clients to health services that provide MCM.

- *Category 4.1.1: Bad topography*

Participants emphasised rugged terrain and dispersed settlements that reduced routine contact with health posts and outreach as a key institutional level barrier to MCM use:

> “As you see, the topography of the area is challenging with lots of hills and gorges … the community [settlement] is very dispersed … during the rainy season they could not come here, and the service utilisation drops unless we … provide outreach services.” (HEWLL-04-KII)

FGD discussants similarly indicated that women living away from the centre of the settlement or the kebele had less access to information and services:

> “… Those who live around the centre of the village are somehow getting changed, but … those who live at different corners have no equal chance to access

> information … There are so many women who did not yet hear or use a method [MCM] …" (LLCU06, FGD-CULL-G3)

The study found that women in remote areas often avoided visiting health centres due to distance, and that these barriers were exacerbated during the rainy season, when mobility was further restricted. These findings indicate that topography and dispersion interrupt information flow and service uptake, making outreach pivotal for equitable coverage.

The findings highlighted that terrain limits routine contact between clients and health facilities, and long travel distances further delay the initiation and follow-up of women at health facilities.

- *Category 4.1.2: Travel long distance*

Travel distance to health facilities was consistently associated with missed opportunities, unmet need, and delays in resupply, particularly for long-acting methods that are not available at the nearest health posts.

A health extension worker highlighted how sheer distance undermines timely access, leaving women vulnerable to pregnancy before they can reach care:

> "The … distance … from the health post may affect her, and she may become pregnant again before visiting the health facility." (HEWML-01- KII)

Where settlements are spread out from centres where health facilities are located, routine follow-up becomes difficult; women miss appointments and face a higher risk of unintended pregnancy:

> "This kebele is large and geographically dispersed. Some women encounter the problem of distance to visit this health post, and they may miss appointments and get pregnant due to distance." (HEWML-02-KII)

When preferred long-acting contraceptive methods are unavailable in the local health facility, women must travel to the next town, incurring transport costs or may discontinue the method:

> "For some … who need a long-acting method, they are forced to travel to the town by paying for transport … If the services … were available in the local health post, it could be better utilised." (MLCU01, FGD-CUML-G1)

Together, these accounts show that long travel and transport costs delay initiation of MCM use, complicate resupply, and narrow the range of methods available to rural women, especially for LARCs that are not provided at first-contact health posts.

Even when distance is overcome, how services are organised (hours, privacy, referrals, and other administrative matters) further shapes access to and continuity of method use, as described in the next section.

- **Sub-theme 4.2: Administrative accessibility**

Programme hours, privacy, basic infrastructure, and referral arrangements determined whether women could reach, be heard, and be served without interruption by FP service providers. These organisational features of care, distinct from topography and travel distance, shaped the practical feasibility of initiating, continuing, or switching modern contraceptive methods (MCM).

- *Category 4.2.1: Programme challenges*

Participants explained that health posts are typically open only on weekdays and daytime hours. For rural women whose mobility is constrained by work, caregiving, or distance, this schedule limits access and pushes some to private facilities, while others miss appointments and face a sensitive risk of unintended pregnancy:

> "The health extension workers gave us contraceptives during … Monday to Friday, but … during the weekend or at night, you couldn't find one … Some women … go to the private facility … those without money will be forced to miss the appointment or could become pregnant …" (LLNU06, FGD-CNULL-G4)

Limited hours push clients to private care or missed resupply, increasing inequity for those unable to pay and elevating pregnancy risk.

Beyond hours, the care environment itself including counselling rooms, availability of water supply and uninterrupted power shapes women's comfort to receive FP services with privacy and dignity.

- *Category 4.2.2: Poor infrastructures*

HEWs described providing services for multiple clients from a single room, discouraged women from asking questions about MCM in the presence of others:

> "… Inconvenience of the counselling room is one problem we had; we have only one room for all services, and it [the counselling room] is not convenient and not clean for women who want privacy." (HEWML – 02-KII)

Another HEW from a different health post echoed the same challenge, where shortage of counselling room breached privacy:

> "… those who wish to ask for an MCM fear asking us because the others may hear what we talk; we have no separate room for counselling …" (HEWHL-07-KII)

Inadequate water supply and lack of electricity limited hand hygiene and sterilisation, eroding confidence in infection prevention and constraining procedure readiness:

> "… no water source in the health post … There was no power source [electricity] to sterilise equipment." (HEWML-02-KII)

Another HEW emphasised the same problem, reflecting on the main structural barriers that hamper the provision of quality family planning services:

> "We have no water supply … we fetch water by Jerrican … the shortage of water is the main problem …" (HEWML-03-KII)

Infrastructure deficits deter disclosure, reduce perceived quality, and erode trust in infection-prevention barriers, which are especially important for the initiation and consistent use of MCM.

Additionally, administrative challenges, including poor service integration and fragmented referrals discussed below, emerged as barriers that compromise continuity of MCM use and expose women to unintended pregnancies.

- *Category 4.2.3: Lack of service integration*

Participants reported being referred between the health post and health centre, sometimes turned problematic because the receiving facility could not have the profile of the client, leading to long waiting time, missed doses and unintended pregnancies:

> "HEWs… tell us to go to the health centre … the health centre again does not accept us … and sometimes sends us back … Many women become pregnant in between such unnecessary referrals." (HLMCMUO4, FGD-CUHL-G2)

The health extension workers indicated there was weak integration of FP with other health services where potential women with unmet needs who visited health facilities couldn't get counselling for MCM:

> "In the integration, we provide FP education to few women who come for other services, … as we become busy with other services we do not advise them. We have limitations on this." (HEWLL-05-KII)

Weak integration failed to address missed opportunities for potential women who demand MCM, and poor referral linkages break otherwise manageable care pathways, converting minor procedural issues (e.g., resupply, minor side effects) into discontinuation and unintended pregnancy.

In general, administrative barriers including limited operating hours, lack of privacy, and inadequate infrastructure restrict women's access to quality FP services. These constraints contribute to unmet need, discontinuation, and reduced uptake of MCM. Addressing service-hour issues and improving infrastructure at health posts are essential to ensure equitable and consistent access.

- **Sub-theme 4.3: Information and counselling about MCM**

Quality care related to family planning services relies on accurate information, responsive counselling (including side effect management), and informed, voluntary choice of preferred methods of contraception. The findings under this sub-theme covered programme status and challenges related to behavioural change and communication (BCC), counselling clients, and the status of informed choices at the local health institution level.

- *Category 4.3.1: Behavioural change communications*

Participants described experiences with multiple BCC approaches, including women-segmented education sessions, community change agent models, facility IEC materials, and integrated pictorial dialogue tools that aimed to normalise MCM use, address misconceptions, and translate information into uptake.

HEWs reported tailoring FP education to women at different reproductive stages, which facilitated targeted questions and peer learning as a strategy for enhancing MCM use:

> "We organise women's conferences targeting three groups − pregnant, breastfeeding, and non-pregnant women … an invited midwife facilitates the discussion among women." (HEWHL-08-KII)

Participants reported the experiences of short-term projects that capacitated and engaged local change agents including youth, model women, religious leaders, and village health leaders, who successfully facilitate community dialogue sessions and disseminate accurate messages to the local community that brought change in MCM use:

> "They trained youth and youth peer-to-peer support facilitated … model women, youth, [and] religious leaders … promote MCM … This facilitated the improvement of MCM use … it is we together who brought the change." (LLCU02, FGD-CULL-G3)

HEWs also described the importance of using visual job aids to standardise FP messages and counselling steps:

> "… we have posted a FP poster that describes the types of methods … the counselling processes and steps …" (HEWHL-06-KII)

Participants valued Population Health and Environment (PHE) flipbooks that embed FP within broader family welfare, education, and environmental narratives; to lead participatory and context relevant community dialogue that break barriers to MCM use.

> "There are participatory tools named PHE flipbooks that convey integrated messages about family size, children's growth and development, education, family planning, harmful traditions, environment and conservation … very participatory … bring behavioural change. Adoption … through government structure could make a difference in breaking religious misconceptions about MCM." (HEWLL-04-KII)

This finding highlighted, the importance of using special community dialogue tools with integrated messages that systematically convey the importance of family planning to mitigate impacts for large family size and rapid population growth on children's health development, economic status of families, and on environmental sustainability for better behaviour change outcome.

- *Category 4.3.2: Counselling*

This study examined client–provider interactions, counselling content and responsiveness, informed choice, and the availability of IEC supports at health posts. Women's accounts revealed inconsistent quality: while some counselling adequately explored options and involved husbands, others omitted anticipatory guidance on side effects fuelling anxiety, unnecessary removals, and pauses in use.

Several of the women participated in this study perceived the information they got from the service providers by the time they received an MCM method was inadequate. They reported receiving appointment advice without relevant information and preparation for common side effects, increased fear and uncertainty after initiation:

> "By the time I started using the injection, they told me about the next appointment date… I was not told about the problems that follow … They told me it is a good method and reminded me to take the next injection … It would be very helpful if

> the health workers tell the possible problems … we will not be too much afraid of the small problems [side effects].” (LLCU06, FGD-CULL-G3)

In contrast, some participants described two-way counselling that clarified options, addressed questions, and facilitated method switching over time as needs changed, with husbands engaged in the process:

> “… My husband asked the HEW, ‘What options are there?’ They told us … injection and pills. … I took it [pills] for nine months … had nausea and vomiting; I returned and explained the problem … again, after giving a childbirth … I visited HEWs and took the injectable … I never took the long-acting method.” (HLMCMUO2, FGD-CUHL-G2)

HEWs described how the counselling strategy with messages that compared the visit frequency and possibility of missing dose in case of using short acting methods compared to using long-acting methods enhanced shifts from short-acting to long-acting options:

> “… we are working to improve the use of the long-acting method, telling women on short-acting that it consumes time … you come every three months; you may miss the appointment and become pregnant … it is good if you take the long-acting methods. As we properly counsel them, now they are shifting … to the long-acting method.” (HEWLL-04-KII)

Providers reported counselling on the full method spectrum, including LAM and permanent methods, while noting that only some options were available at the health post necessitating referral for others:

> “We provide only Implants … Depo injection, pills, and condom. But we counsel on all methods including the permanent contraceptive methods.” (HEWML-03-KII)

Overall, counselling quality varied between transactional resupply (date-focused, limited side-effect preparation) and person-centred dialogue (problem-solving, switching support, couple engagement). Where anticipatory guidance and responsive follow-up were present, women navigated side effects and maintained spacing; where missing appointment, fear and discontinuation were more likely.

Effective counselling supports informed, voluntary choice of MCM, but its impact depends on what methods and supplies are available and the provider's competency (technical and interpersonal) in providing the preferred methods per clients' choices.

- *Category 4.3.3: Informed choice*

Participants described counselling encounters that generally respected choice, while also revealing constraints imposed by a limited range of methods at first-contact facilities.

HEWs reported that they present available options and allow women to decide without pressure, indicating many clients choose injectables for their comfort and covert use:

> "We do not influence them as HEW. We inform them of all available methods, and they select by themselves. They like the injection and say I am comfortable with the injectable method." (HEWHL-08-KII)

Women described how the health extension worker showed them various methods, and they chose the one that best fit their needs, highlighting the positive experiences that reinforced continuation of the preferred method:

> "They showed me all the available methods, and I chose the three-month injection [Depo Provera]. They showed how to take each method, including pills, injections, and implants, but I chose. I took the injection, and the good thing it gave me is that it decreased the menstrual flow … which I like … and continued using it." (HLMCMUO1, FGD-CUHLG2)

Women articulated informed choice as progressive understanding that needs learning about FP and its purpose, clarifying durations of protection, and selecting:

> "What I know by family planning … the use of contraceptive comes after getting the required understanding … we learn which methods help … for longer period and…those serving for brief period… After we learn … for example … for longer period we insert the three years implant …" (LLCU02, FGD-CULL-G3)

Overall, these explanations indicate that non-directive counselling supports women to choose methods aligned with their preferences and circumstances, and that positive user

experiences foster continuation. The effectiveness of method choices in practice, therefore, requires providers' competence and the availability of the methods and supplies covered in the sections below.

- **Sub-theme 4.4: Provider's competence**

Across sites, participants described that provider competence was not equally distributed among the health extension workers. Strongest competencies were observed in counselling and provision of short-acting methods, but there were constraints for long-acting reversible contraception (LARC) procedures. While some HEWs insert implants, implant removal and IUD services were frequently unavailable on-site at the local health posts, leading to referrals, discontinuation, and avoidable gaps in service quality. Women therefore perceived health posts as offering mainly basic services (pills, injections, vaccinations), with procedure-dependent care pushed up to higher health facilities.

- *Category 4.4.1: Skill gap*

Women commonly understood HEWs' scope to exclude long-acting methods, attributing this either to policy or to gaps in training:

> "They [HEW] usually give simpler methods like pills and vaccinations; they are not allowed to give long methods. I am not sure if not trained about it or if the plan itself needs to give a long method from the health centre only." (HLMCMUO3, FDG-CUHL-G2)

Providers themselves linked lack of implant removal capacity to discontinuation and loss to follow-up:

> "… we insert Implanon, but we cannot remove the implant we inserted for a woman… when a client asks for removal we send her to another health centre … [she] may not come to us again … or she may discontinue … Training in providing all services including removal … could improve the use of long acting … methods." (HEWLL-04-KII)

Several HEWs plainly stated they could not provide services without prior hands-on training:

> "… I haven't got Implanon training and removal, yet I cannot provide it." (HEWLL-05-KII)

Skill gaps were most pronounced for IUD insertion and removal:

> "We have no IUD method, and we were not trained on IUD method provision." (HEWML-01-KII)

> "In this kebele, we are three [HEW] … trained on Implanon insertion and … on the short acting methods … But none of us was trained on IUD … There is a problem of removal of Implanon among some … but for me I am trained and I can remove implant." (HEWML-01-KII)

One HEW described an infected removal site after repeated attempts, noting the knock-on effects for community confidence:

> "Once I was asked to remove an implant for a woman, I was not skilful at that time, and I tried the removal several times and succeeded later, but the removal site became wounded with infection … where the women seek treatment from a health centre. That could result in frustration of taking Implanon again by that woman and other women." (HEWML-02-KII)

Competence gaps extended to youth, persons with disabilities, and infection prevention practice:

> "There is a limitation on IUD method provision, and special training for youth and disabled people is not available. We have a limitation on infection prevention training and limitation of supplies and equipment to prevent infection." (HEWML-01-KII)

These explanations noted that skill gaps, particularly in implant removal and IUD insertion, disrupt the continuum of care for LARC users. Where procedures exceed on-site capacity, women are referred, switch late or discontinue, and community trust can be

shaken by procedure-related complications. Beyond technical skill, the next section explored how women are received and heard determines whether they return for continued use.

- *Category 4.4.2: Compassionate and respectful care*

The following remark describes how women encountered a disrespectful service provider who discouraged them and compromised the quality of service. A participant described seeking help for side effects twice, receiving rushed reassurance without assessment, and ultimately removing the implant and becoming pregnant:

> "… I was not comfortable with the method and visited the health worker twice seeking support … They told me that they are busy and cannot help me … [They] simply told me that the method will not harm me without checking my condition … I visited a private health institution that removed the implant … Then I got another child after the removal." (HLMCMUO3, FDG CUHL-G2)

FGDs highlighted inadequate client-provider communication, unnecessary referrals, and reluctance to assist women served elsewhere, indicating situations that undermine continuity of the care:

> "HEWs working here tell us to go to the health centre in the town, … the health centre again does not accept us … and sometimes sends us back… Many women become pregnant in between such unnecessary referrals … [This] needs to be improved to further increase MCM use by women." (HLMCMUO4, FDG-CUHL-G2)

These explanations suggest that limitations in provider-to-client interaction remain a barrier to effective MCM use, and participants emphasised the need for improved communication and respectful care to achieve better outcomes. Where compassionate, respectful, and responsive care is lacking, women are less likely to seek help for side effects, more likely to remove or discontinue, and more vulnerable to unintended pregnancy. The participants themselves identified the need for regular refreshment training alongside clinical practice to address competency gaps.

- *Category 4.4.3: Refreshment training*

HEWs emphasised the need for in-service refreshers and practical coaching on LARC techniques, particularly related to implant removal, IUD insertion and infection prevention protocol:

> "We got training on FP in pre-service training, but there is no chance for refresher training … I was not trained on how to remove Implanon … I was also not trained on IUD insertion." (HEWML-03-KII)

> "The limitation… is IUD method practice. The training limitation is on the practical aspect; we have not practised on a real client. Due to this, we can't practice IUD immediately after the training." (HEWHL-06-KII)

HEWs also reported challenges in maintaining infection prevention standards due to a lack of refresher training to keep themselves up to date with the updated infection prevention protocol and to apply it consistently.

> "We need training on infection prevention a lot because if something happens due to poor infection prevention practice, that information spreads fast in the community and women may become frustrated to come to us for contraceptive services." (HEWML-03-KII)

Regular, hands-on refreshers with supervised practice expand scope, shorten referral chains, and reduce complications, thereby improving confidence in LARC services and protecting continuity.

- **Sub-theme 4.5: Method choice and supplies**

Method choice refers to the range and reliability of contraceptive options available at first contact facilities, ensuring women can select a method that fits their preferences and circumstances and can continue or switch without interruption. In this study, we examined (a) the consistent availability of methods at health posts, (b) the most preferred methods, and (c) patterns of method shifting or discontinuation when supplies, skills, or referrals fell short.

- *Category 4.5.1: Available methods and shortage of supplies*

Across health posts, short-acting methods (condoms, pills, and Depo Provera) were consistently available; implants were offered only where trained HEWs were present, and IUDs/permanent methods were not available in the local health posts, except in rare circumstances:

> "The available methods are Depo, Pills, Implants and Condoms … at the health post level. We have no IUD, but if we found a client that wants to use IUD, we refer her to the health centre." (HEWLL-04-KII)

Women were often introduced to a small set of options (pills, injection, implant), with some methods only arriving later or available only at higher level facilities:

> "First day they told me there are three methods: pills, injection and implant. …The [IUD] was not available that time; it came recently, and we saw people using it." (HLMCMUO3, FDG-CUHL-G2)

Where the three-month injection was the only option at the health post, women who preferred implants travelled to health centres at additional time and cost:

> "We get the three-month injection only. I previously did not get the three-year method, not available at the health post; then I went to the health centre in the nearby town and got the three-year implant method." (HLNU04, FGD-CNUHL-G6)

HEWs described recurrent stockouts of procedure-enabling supplies (e.g., gloves, syringes, alcohol, lidocaine), which constrained implant services, forced unwanted shifts to short-acting methods, and exposed women to transport costs and delays:

> "… sometimes supplies like Surgical gloves, Lidocaine, syringes, and alcohol stock out, and women may be forced to shift from implants to short-acting methods like pills and injections due to stockout of supplies. IUDs are not available, and we refer those women who need an IUD to the health centre in the nearby town." (HEWML-02-KII)

Women reported arriving on time for resupply but encountering missing syringes or stocked-out injectable methods, triggering referrals that were sometimes rejected by the receiving facility, resulting in gaps and unintended pregnancies:

> "What she … said about the service in the health post is right… Even when we go there to take our three months contraceptive … we may not get either the syringes or… the drug … the HEWs … tell us to go to the health centre in the town …" (HLMCMUO4, FGD-CUHL-G2)

Even when a woman meets criteria for implant removal, lack of local anaesthesia at the health post prompted referral and extra costs:

> "Now it is about two years ago I removed an implant … When I asked for removal, there was no drug [local anaesthesia, lidocaine] … Then they [HEWs] gave me a paper and referred me to the health centre … and there I removed it." (MLCU06, FGD-CUML-G1)

A narrow on-site method mix and recurrent stockouts (both contraceptives and supplies for procedures) constrain choice, force switching, and introduce delays that raise the risk of unintended pregnancy. Even motivated users face transaction costs (time, travel, and rejected referrals) that erode continuity of use.

- *Category 4.5.2: Preferred methods*

Across sites, Depo-Provera (a three-month injectable) was the most preferred among married women. Participants attributed this to its convenience to hide (harder for others to detect), lower perceived religious concern (no device left in the body), and manageable side effect profile relative to implants and IUDs. In contrast, implants/IUDs were less acceptable due to visibility at the insertion site, fear of "foreign body" in case of death, and reports of heavier bleeding.

Many women valued injectables because they can be used covertly and do not involve a device remaining in the body:

> “People prefer the three-month injectable … it cannot be easily identified if a woman uses it secretly. Disliking the 3-year implant [due to] religious misconceptions, they [women] fear a foreign material inside their body, considering it sinful to be buried with an implant.” (HEWML-01-KII)

Injectable methods were preferred to prevent disputes at home and were encouraged by friends:

> “They also prefer injection to use secretly as the husband cannot easily know—whereas he may see the implant site and quarrel. Friends also encourage the injectable more.” (HEWLL-05-KII)

Some women preferred injection due to positive experiences such as improved menstrual patterns.

> “I took the injection, and the good thing it gave me is it decreased my menstrual flow … I liked it, became happy, and continued using it. I had no illness or complaint.” (HLMCMUO1, FGD-CUHL-G2)

However, some women preferred long-acting methods for their reliability and practical benefits in managing family responsibilities:

> “The one I used was the three-year method; it has many benefits … in all ways it is a good thing.” (HLMCMUO2, FGD-CUHL-G2)

These explanations generally highlighted that preferences were shaped by a combination of factors: hidden use that others couldn’t observe; community narratives and religious concerns; and personal experience with side effects or perceived health benefits. The overall pattern favoured short-acting injectable methods over visible device methods, unless women had strong prior confidence in or positive experiences with long-acting options. These preferences intersect with availability and supply chain at local health facilities at first contact, which together influence whether women continue, switch, or discontinue, as discussed in the adjacent categories.

- *Category 4.5.3: Method shift or discontinuation*

Participants described frequent method switching and, at times, discontinuation, driven by three interlinked forces: service readiness gaps (methods not available or the absence of a skilled provider at the local health post), side effects or medical concerns, and access barriers and social narratives. These shifts often involved delays, referrals, and periods without protection, raising the risk of unintended pregnancy.

Women recounted moving from injectables to implants, and later to IUDs, when local facilities could not provide the desired method or removal, creating referral-related gaps:

> "I used the three- month injection here. When I wanted the three-year implant, they told me it's not available at this [Local] health post; I got it in 'Dinsho town' [a nearby town with a health centre]. When the implant disturbed me, I stopped and gave birth. After delivery … I inserted the IUD." (HLMCMUO4, FGD-CUHL-G2)

Some women stopped a method because of medical conditions such as elevated blood pressure or systemic discomfort, then reinitiated another method or sometimes returned to a prior option after trial:

> "The three-month injection increased my blood pressure. I stopped and got a baby. Before the baby reached one year, I started the three-year method; it wasn't comfortable for me, so I removed it and shifted back to the three-month injection." (HLMCMUO3, FGD-CUHL-G2)

A woman reported that intolerable side effects of the injectable method forced her to shift to an implant method that became better for her:

> "The three-month injection didn't give comfort; I felt itching in my limbs and small patches under the skin … Later I shifted to the implant and felt comfortable with it." (LLCU02, FGD-CULL-G3)

It was noted that some women postpone appointment dates or discontinue method use due to long travel (geographic in accessibility) or also administrative in accessibility (closure of health facilities during weekends or, in case of referral practices, creating delays):

> “Due to long travel distance, women may change their travel plan to the next or the third day; sometimes they discontinue MCM use and become pregnant.” (HEWLL-04-KII)

Some women deliberately prefer short-acting methods so they can easily stop and become pregnant again to meet fertility or kinship expectations:

> “The most preferred method is the three-month injection. Only recently are they shifting to implants; previously they misperceived implants as needing a good diet, and they also traditionally want many children, so they prefer short-acting methods to stop soon and return to pregnancy—especially linked to resource ownership norms.” (HEWHL-06-KII)

Providers also explained community narratives in the form of religious/moral concerns, myths about diet and misinformation contributing to method discontinuation or shifting:

> “Community misconceptions, religious concerns, rumours, and myths are common barriers. Lack of adequate nutrition and household food availability are reasons many women give for discontinuing MCM, as they misperceive MCM affects health if they don’t eat nutritious food.” (HEWLL-04-KII)

Method paths are dynamic and shaped by how quickly women can switch when they experience side effects or seek a different duration. Where the desired method or removal skills are not available locally and where distance, hours, or referrals add challenges leading women to face gaps without protection, heightened by social narratives about religion, diet, and fertility. Strengthening same-day method continuation or switching, on-site removal capacity, and referral reliability would reduce unnecessary discontinuation and unintended pregnancy.

While institutional factors determine whether women can access, choose, and continue MCM in practice, these conditions are shaped by the broader policy and societal environment described below.

4.5.3.2.5 Theme 5: Policies and societal level aspects

Whereas institutional conditions determine whether women can access, choose, and continue modern contraceptive methods (MCM) in practice, these service realities are shaped upstream by policy priorities, financing, intersectoral coordination, and the influence of societal gatekeepers. Theme 5 therefore examines the policy/societal levers through which durable, system-wide improvements in equitable MCM use can be achieved.

Four policy domains emerged as especially salient: women's empowerment, improving programme access and service quality, engagement of gatekeepers and change agents, and multi-sectoral integration. Across FGDs and KIIs, participants described how these levers functioned as enablers (when present) or barriers (when absent or weak) to women's autonomous, informed, and sustained use of MCM.

- **Sub-theme 5.1: Women's empowerment**

Participants consistently linked women's education, economic participation, and protection from harmful practices to greater self-determination and independent reproductive decision-making. Policy attention to expanding girls' and women's education, preventing early marriage, strengthening adult literacy, and supporting income-generating activities was viewed as foundational for improving MCM uptake and reducing unmet need.

- *Category 5.1.1 Women's education*

HEWs described routine efforts to help girls remain in school and avoid underage, non-consensual marriage, emphasising downstream gains in autonomy and livelihoods:

> "… We support them [girls] and they support each other—identifying and helping those facing challenges such as marriage arrangements before 18 and without their interest … If adolescent girls stay in school, they will not marry young; this gives them a chance to get a job and their own income, so they become strong later in life and decide for themselves." (HEWML-01-KII)

Women themselves framed illiteracy as a core constraint, contrasting their experiences with those of their more literate daughters:

> "Illiteracy is the main problem; we are affected because we are not educated; this affects our children and us in many ways. Our daughters are better; they read information because they got the chance to learn, and that benefits them." (HLMCMUO3, FGD-CUHL-G2)

Participants repeatedly noted that literacy translates into practical uptake, while competing demands and hesitation delay decisions among women with low literacy:

> "The educated ones understand the benefits and try [contraceptive use] practically. But illiterate women are reluctant to use it even after attending FP education; they say they are busy and if they go, some work at home will not be done … in the meantime, before they decide, their monthly period may be missed [they become pregnant]." (HLMCMUO3, FGD-CUHL-G2)

Women also highlighted how even limited adult education can strengthen day-to-day autonomy and access to information:

> "In this world, there is nothing better than education … a person with education is more able to use life's opportunities like MCM because they know the value … I only attended adult education equivalent to grade two, not strict formal classes; thus, I can use a mobile phone, save contacts, and communicate independently from the little literacy I obtained. When you understand the value of education, you wish your children a better education and life." (MLCU01, FGD-CUML-G1)

HEWs confirmed the association between education and MCM adoption:

> "Educated women use MCM more than those who have no education …" (HEWLL-09-KII)

Women's education, whether through formal schooling or adult literacy programmes, enhances health literacy, confidence, and negotiation power, making it more likely that women will initiate and sustain use of their chosen MCM. Conversely, illiteracy sustains hesitation, delays decisions, and increases the risk of unintended pregnancy.

Beyond education, participants also emphasised economic empowerment (employment, VSLA, income generation) as policy levers that reinforce women's reproductive autonomy, as outlined in the upcoming categories.

- *Category 5.1.2: Employment and income generation*

Across the study area's agro-ecological settings, participants linked women's income-earning roles, including petty trade and small businesses, to greater autonomy, bargaining power, and practical motivation to use MCM. Employment created time pressures and opportunity costs that made spacing and predictability in childbearing relevant for women's economic participation.

Women engaged in petty trade described how childcare burdens during market days directly interfered with earning, prompting the decision to use contraception:

> "Women who work small trades on market days are more likely to use contraceptives. We need freedom and don't want to suffer with children. I do petty trade and face difficulty working while carrying a small baby, so I decided to use a method." (LLNU01, FGD-CNULL-G4)

Participants explained that once women experience the benefits of spacing for their health and productivity, they are better positioned to negotiate support from husbands:

> "Women who have a job or do business outside the home mostly use contraceptives because they have seen the benefit of spacing. A woman who sees the benefits on her own body can convince her husband through discussion and get his support …" (MLCU02, FGD-CUML-G1)

Rising population, scarce land, and tighter job markets made work essential; women framed MCM as enabling sustained participation in income-earning and support to the household:

> "Everyone should use MCM. Women need family planning to succeed in business and trading so they can support their families. Raising children is becoming difficult unless we work. Before, the population was small, and land was enough; now, as

people increase, everything is difficult; getting a job and land is challenging for the current generation." (HLMCMUO4, FGD-CUHL-G2)

Employment and income-earning increase the opportunity cost of closely spaced births, strengthen women's bargaining position at home, and translate perceived benefits of spacing into concrete uptake of MCM. Beyond education and income-generation opportunities, the presence of locally formed self-help groups was instrumental in supporting one another and encouraging those lagging behind.

- *Category 5.1.3: Self-help groups*

Participants described locally established self-help groups, including savings/credit groups, community health committees, and informal neighbourhood social support groups, as important spaces where women support one another, share lived experiences, and disseminate accurate information about MCM. These peer structures complemented facility-based education by normalising discussion, modelling benefits, and linking women to services.

Women emphasised that behaviour change often came through mutual learning and experience sharing rather than formal health talks:

> "It is not because of the education by health professionals, but more through learning from each other within the saving and credit group in the village. Members learn family planning and home economics from friends. We share our experience; now our neighbours started taking contraceptives, supporting women to rest a while and recover their health before becoming pregnant again." (HLMCMUO1, FGD-CUHL-G2)

Short-term projects helped organise community health committees where women, neighbours, and leaders discussed the consequences of large family size and closely spaced births, then carried conversations home:

> "Nowadays the government and other stakeholders organised us in a community-based health committee to discuss problems due to family size and closely spaced pregnancies. We see and learn from friends and neighbours. We are closer to each other and talk about both good and bad things; I share information with my

> husband, and we discuss it together. We observe one another and, per our religion, people will follow you and ask why she does this or that." (HLMCMUO2, FGD-CUHL-G2)

Women from other kebeles reported that once committees were formed, training and counselling came to the doorstep, after which members accompanied new users to the health post for counselling and initiation:

> "Previously, before establishing a committee as a social support group that brought discussion to our doorsteps, we were not aware of these methods. Through training and counselling, we understood and started using long- and short-acting methods … Later we continued convincing others, including young girls married in school. We bring those women to our health post, educate and counsel them there, and they start using from the health posts." (MLCU02, FGD-CUML-G1)

Self-help groups also mobilised practical aid and advocated for access among women with vulnerabilities:

> "There was a girl in our social support group with a mental problem. We helped her in many ways, collecting foodstuffs and clothing … We learned that just having a husband does not mean he fulfils everything. We also talked with her husband and helped her take contraceptive methods." (HLMCMUO2, FGD-CUHL-G2)

Self-help groups function as peer-driven enablers: they convert awareness into action through mutual encouragement, norm-shifting dialogue, and practical accompaniment to services while also reaching women with special support needs.

- **Sub-theme 5.2: Access and service quality**

Various institutional-level strategies have been recommended to improve the use of MCM and reduce the magnitude of unmet needs among married women. These strategies address institutional-level barriers, including those related to improving access and service quality. Some of these strategies to improve structural barriers include improvement of the contraceptive method mix through improvement of contraceptive supply chain management to avoid stock-outs of supplies, outreach programmes through establishing mobile teams that provide long-acting reversible and permanent methods to

harder-to-reach and geographically inaccessible settings, and competency improvement strategies through on the job training to HEWs so that develop the skill of insertion and removal of implant and IUD methods per the MOH guideline.

- *Category 5.2.1: Improving health infrastructures*

Women emphasised that lack of private rooms limits open discussion and discourages help seeking, while facility water shortages force improvised procedures and reduce confidence in quality:

> "My suggestion to health institutions is to improve the rooms; it is difficult to discuss privately with HEWs as others can observe and listen. Water supply also needs improvement; sometimes they borrow water from nearby households to perform procedures. They should also work on method availability and weekend services." (HLMCMUO1, FGD-CUHL-G2)

HEWs repeatedly called for improved counselling rooms, reliable water, sanitation, and power to protect privacy and infection prevention and to make the service environment welcoming:

> "There are women who wish to prevent pregnancy for a certain period but are not using a method. Such women could use contraceptives if they feel comfortable with our service. The cleanliness of the service site, water, and latrine facilities would improve the services we provide." (HEWML-02-KII)

Upgrading core infrastructure (private counselling space, water/sanitation, electricity) is foundational for respectful, safe, and trusted care. These improvements increase women's willingness to seek counselling, disclose concerns, and initiate or continue a method.

- *Category 5.2.2: Outreach programme*

Participants described mobile and outreach services as a practical strategy to expand access to long-acting reversible and permanent methods in hard-to-reach areas.

Outreach was seen to reduce distance barriers, bring skilled providers closer to communities, and offer methods that are not routinely available at health posts.

HEWs reported experiences of mobile teams organised by partners bringing IUDs and permanent methods into the district, enabling women to receive effective contraceptive methods without travelling far:

> "Those who live closer receive from this health post. Some women get services from the private clinic and the town health centre … There was an NGO [Marie Stopes] mobile outreach … it was a good service and enabled women to access effective methods, including IUD and permanent methods." (HEWML-01-KII)

Participants also noted that the catchment population in some of the villages outweighs available staff based in the local health posts, making it difficult to meet demand from the health post alone; scheduled periodic outreach can close this gap:

> "The population number and our number [HEWs] was not proportional, and we become busy with different services at a time … To improve this, we should perform outreach FP services by travelling to communities living very far from the health post." (HEWLL-05-KII)

Several participants explained that outreach and weekend opening were not consistent, constraining responsiveness to demand:

> "Previously people were getting services through payment from private institutions. Currently the health post provides services when we open, except on weekends. We provide outreach sometimes, but not always." (HEWHL-08-KII)

HEWs emphasised that transport constraints prevent continuous outreach, even when demand is high:

> "If we get support from concerned bodies and partners, we can continuously provide outreach services. We need transportation; as we have none, we cannot continuously perform outreach." (HEWML-02-KII)

Outreach programmes broaden access to LARC and permanent methods, reduce the costs of distance, and, when paired with respectful counselling, enable same-day switching to more suitable options. Their effect, however, depends on regular scheduling, sufficient staffing, and transport/logistics support to avoid irregularity that undermines continuity.

- *Category 5.2.3: Supply chain management*

Participants underscored that reliable commodity security from contraceptives to procedure-enabling items (e.g., syringes, lidocaine, gloves) is essential for translating demand into same-day initiation of use, resupply, removal, and method switching. HEWs described routine logistics practices (forecasting, stock monitoring, and monthly reporting) alongside periodic stockouts, noting that gaps in supply expose women to delays, discontinuation, and unintended pregnancy.

HEWs reported using established tools and monthly cycles to anticipate needs and request replenishment, including partner support when available:

> "We encounter a shortage of Implanon sometimes, but we receive it from the WHOs. We request and forecast supplies and commodities using PIN cards and monthly requests using a system established for this purpose." (HEWML-01-KII)

> "We use the RRT technique to follow up and forecast the supplies required to provide the services. We report every month and request shortages of the supplies and get resupply." (HEWML-03-KII)

Providers described standard stock control tools and reporting forms, while acknowledging that woreda-level availability ultimately determines whether requests are filled:

> "We use bin card and BMMR to monitor availability of methods and request resupply every month or when we identify shortage. When there is adequate supply in the woreda, they will resupply for us, but when there is shortage, we cannot resupply." (HEWML-02-KII)

HEWs explicitly linked commodity gaps to unintended pregnancy and, in some cases, recourse to unsafe abortion:

> “In case of stock outs, women may be exposed to unwanted pregnancy and try to abort and encounter problems of unsafe abortion induced by an unskilled person or self-induced abortion.” (HEWML-02-KII)

Frontline facilities actively forecast, record, and request FP commodities using bin cards and monthly requisitions; partner-supported outreach occasionally backfills LARC commodities. However, upstream supply constraints at the woreda level and beyond still cause intermittent stockouts, which interrupt initiation, resupply, and removal, and, in turn, increase method discontinuation and pregnancy risk. Strengthening the end-to-end supply chain accurate forecasting, adequate pipeline stocks, timely distribution to health posts, and availability of procedure supplies would protect continuity and reduce avoidable harm.

- **Sub-theme 5.3: Gatekeepers and change agents' engagement**

Strategies that actively involve critical segments of the community, including cluster-level self-help groups, community dialogue, religious leaders’ forums, and men-focused programmes, were suggested by the participants to break community-level barriers to MCM use, such as religious misconceptions and myths that spread within the community.

- *Category 5.3.1: Involve religious leaders*

Women described a pilot programme that trained religious leaders, elders, role-model women, HEWs, and development agents to co-facilitate community dialogues on family planning, health, livelihoods, and the environment. Involving trusted leaders reduced fear and normalised use:

> “A project by an NGO came and organised role-model women, religious leaders, elders, community leaders, HEWs, and development agents to facilitate community dialogue on population, poverty, health problems, and environmental degradation. They provided training on family planning topics that we feared to discuss, pretending our religion prohibits spacing. Before, women with information

> secretly used MCM … As the programme involved religious leaders and awareness reached the wider community … gradually women started using the method with less fear." (LLCU06, FGD-CULL-G3)

Participants pointed out that shared values such as the need for breastfeeding a baby offer common ground for leaders to support healthy spacing of pregnancies:

> "It is key to work with religious leaders while educating the community. I think all religions support breastfeeding a baby, and involving religious leaders is key for change." (LLNU03, FGD-CNULL-G4)

HEWs reported FP dialogue forums/workshops involving leaders from different faiths and influential community figures to prevent misinformation:

> "In our woreda … MCM is often associated with religion. The woreda health office organised FP discussion forums for religious leaders of both religions, elders, and influential people to clarify the importance of FP and give accurate information so they cooperate with our programme and do not misinform followers." (HEWHL-06-KII)

Doctrinal clarification that distinguishes prevention from termination becomes the turning point for religious leaders becoming supporters of MCM used for healthy spacing of pregnancies. Women noted that once leaders received training on how methods work, some publicly clarified that preventing pregnancy is distinct from abortion and not sinful:

> "He [religious leader] said he received training on FP methods and how each works to prevent pregnancy. He told us prevention before it occurs is not a sin, unless the method terminates an already formed pregnancy; killing a foetus [abortion] is not allowed [per the religious doctrine]." (LLCU02, FGD-CULL-G3)

When religious leaders are oriented, involved, and visible in community dialogues, they re-anchor messages in shared values, counter myths, and lower social costs of using MCM, enabling women to move from secrecy to confident, supported use.

Alongside religious leaders' engagement, participants also highlighted the role of male involvement and of model women or peer champions in sustaining community-level norm change and in escorting women to services, as described in the categories below.

- *Category 5.3.2: Men-focused programme*

Across FGDs and KIIs, participants repeatedly emphasised that husbands' attitudes and decisions strongly shape whether married women initiate and continue modern contraceptive methods (MCM). They recommended structured, continuous dialogue sessions with men, framed around family well-being, shared economic goals, and religiously acceptable spacing, to move households from passive agreement to practical support.

Women noted that some husbands initially offer verbal approval in public forums but do not follow through at home. Ongoing men's dialogues paired with visible examples from role-model couples and supportive religious messaging were viewed as pivotal in shifting behaviour:

> "Though husbands participate in FP discussions, they never allow their wives to start contraceptive use. Husbands sometimes say 'ok' during the discussion, but they never translate it to reality. Gradually, when they understand more during the dialogue sessions and see the benefits from role-model women who space pregnancies, those who were initially hesitant start to realise the benefits. Involvement of religious leaders helps more." (LLCU06, FGD-CULL-G3)

Women consistently expressed a preference for joint decision-making, stressing that educating men alongside women reduces conflict and accelerates uptake:

> "It should be with agreement with the husband; I want to discuss and decide together. Husbands should be involved; it is not enough to educate women; husbands should be educated as well. This will enable them to agree and start using a method." (MLNU06, FGD-CNUML-G5)

Participants argued that many women who wish to space but are not using a method could initiate if their husbands were engaged directly through coordinated efforts that include religious and civic leaders:

> “To support those women who wish but do not use MCM, we should involve their husbands. All sectors should work together, especially those related to husbands, including religious leaders and political leaders, so that every woman who wishes to prevent pregnancy can use a method without fear.” (HEWML-03-KII)

HEWs suggested that visible endorsement by political leaders helps legitimise family planning among men by linking spacing to community stability and prosperity:

> “If leaders and politicians promote FP, husbands accept it more and change. But they are not prioritising FP. Politicians and leaders should prioritise it because family size and population growth are closely linked to political stability and peace. If they promote FP, it helps solve political and poverty problems in the long-term.” (HEWML-01-KII)

Men-focused programmes that combine regular dialogue, couple-centred education, and public endorsement from religious and political leaders can move households from verbal assent to practical support, reducing opposition, normalising spacing, and enabling women to act on their preferences.

Men’s engagement is an important entry point at the interpersonal level, but meaningful progress requires wider community dialogue that challenges entrenched social norms and amplifies accurate information. The following category examines how structured community discussions and grassroots engagement mechanisms reinforce norm change and expand collective support for MCM.

- *Category 5.3.3: Community engagement platforms*

Participants highlighted community dialogue platforms including village-level committees, neighbourhood networks, and multi-stakeholder dialogue forums as essential mechanisms for breaking socio-cultural barriers to MCM use. These platforms brought together husbands, elders, religious leaders, model women, youth, and HEWs to discuss the implications of large family size, the benefits of spacing, and to correct misconceptions embedded in clan-based expectations and religious interpretations.

Participants emphasised that open community discussions about family well-being, especially children's health, nutrition, and educational opportunities, helped reframe deeply rooted expectations around maintaining large clan numbers:

> "… For the cultural concern related to the number of clan members, it is good to have dialogue sessions about the impact of family size on children's growth, development, and future success. How a family with two or three children can better fulfil basic needs such as education and nutrition should be widely discussed. Dialogue among husbands, elders, and religious leaders on the importance of spacing could bring behaviour change in family planning." (HEWML-01-KII)

Participants described the establishment of Village Health Committees trained by NGO programmes that convened diverse community representatives to lead dialogues at sub-village level:

> "An NGO project introduced an approach that established a Village Health Committee with religious leaders, model women, village leaders, youth representatives, HEWs, teachers, and agricultural agents. They were trained as volunteer teams to facilitate community dialogue every two weeks and report progress and challenges to the woreda and PHCU in quarterly review meetings." (HEWLL-04-KII)

HEWs and community members explained how neighbourhood networks, with their own representatives and model women, facilitated two-way communication and helped organise outreach sessions:

> "There are community networks with their own representatives who communicate with us, and model women at village level who also communicate with us. Through discussions with village leaders, we organise outreach schedules and provide MCM to them there." (HEWHL-06-KII)

FGD participants explained how integrated community discussions bringing together youth, religious leaders, and women helped spread FP knowledge to every corner of the village:

> "Before such education in the community, we knew nothing. But through a programme, we organised FP discussions with youths, religious leaders, and women … After the education, women organised a development army network and started understanding … the discussion reached every corner of the village, and we learned the benefits of spacing pregnancy to save our resources." (MLCU02, FGD-CUML-G1)

Women described how community-based committees, especially those including experienced MCM users, became trusted sources of information and key actors in escorting others for initiation:

> "We get information on FP from HEWs and from the committee established to discuss health issues. The committee includes women with FP experience, and we learn from them. Later we started voluntarily informing other women in our social networks, and many began using methods, both long-acting and short-acting, through discussion." (MLCU02, FGD-CUML-G1)

Community engagement platforms, whether formal committees, neighbourhood networks, or structured community dialogues, serve as powerful norm-shifting mechanisms. They deepen understanding, correct misconceptions, mobilise women to visit health posts, and legitimise MCM use in settings where clan expectations and religious misinterpretations previously discouraged open uptake. Together with religious leaders and men-focused initiatives, these community dialogue platforms create a multi-layered support system that helps translate individual intention into collective acceptance, setting the stage for broader, multi-sectoral integration, as explored in the next category.

- **Sub-theme 5.4: Multi-sectoral integration**

Participants described multi-sectoral integration, working jointly with education, agriculture, gender/women's affairs, finance/economy, religious institutions, and community-based organisations (CBOs/CSOs) as a societal-level strategy that addresses the social and cultural norms constraining MCM use. By embedding family planning within everyday systems and programmes, these alliances extend reach to husbands, youth, elders, and community influencers, normalise healthy spacing, and translate intent into uptake.

- *Category 5.4.1: Multi-sectoral approach*

HEWs emphasised that non-health sectors are well positioned to interact with influential groups and to integrate FP messages in routine activities and touch points—e.g., conservation and agricultural extension sessions with husbands:

> "To avoid these problems, all sectors including education, agriculture, gender, finance and economy, religious institutions, and others should be involved and promote planning family size through MCM use. If such sectors are involved, they can more effectively reach husbands, youth, and the elderly. We have seen the importance of FP education integrated with agricultural extension for husbands; those who participated supported their wives' use of MCM." (HEWML-03-KII)

Participants argued that policy leaders should position FP as everyone's business, not only the health sector's, linking family size to community stability and long-term development:

> "Politicians think health and FP are the health sector's concern, but it is the concern of all. When a development agent talks about FP, people ask, 'Have you linked with HEW?' If all sectors, including politicians (advocates), support FP, we can improve uptake. Large family size can become a security problem and create social and political pressures, but with good FP this will not happen." (HEWML-03-KII)

Participants identified schools and education offices as strategic platforms for age-appropriate, culturally sensitive FP education that "travels home" through students, reaches both boys and girls, and normalises healthy spacing within families. School channels extend beyond the health sector, embedding FP within everyday learning and strengthening intergenerational information flow.

A health extension worker described the practical value of child-to-parent diffusion using school-based drama and activities:

> "I had an experience with school children, where an FP message in the form of drama performed by students was a best practice to be strengthened further. As children live with their parents, efforts to improve students' behaviour will be carried over to parents. Previously, we were working more with women; if we focus more on children, it will yield better results… As students live in every household, focusing on students will easily reach everybody. (HEWHL-06-KII)

Women suggested that embedding FP discussions where people already gather to solve social and economic problems increases acceptability and peer-to-peer experience sharing:

> "Integration with social self-help groups [Village Saving and Loan Associations] that help one another during social problems could be more acceptable, because it solves real problems of our community and members more easily share experiences related to MCM." (LLCU02, FGD-CULL-G3)

Community forest management cooperatives and similar CBOs were also seen as practical venues for FP integration where CBO leaders work closely with HEWs or become FP advocates and CBO members could learn FP integrated within their regular activities:

> "We support other women as friends and sisters during our Afoosha [Social self-support group] meetings, helping them understand MCM and access services. In our participatory forest management cooperative (PFM), HEWs previously taught about family size and its effect on our children's well-being. We also learned contraceptive methods; many, including me, started MCM, but many have not. If CBO members receive this education again, more women will start." (HLMCMUO1, FGD-CUHL-G2)

Multi-sectoral approaches systematically advocate the importance of family planning by integrating concepts of population, health, and environment (PHE) into natural resource management, agriculture, school-based education, social groups, financial groups, and other trusted community systems and sectors, which could receive more attention and buy-in than a standalone FP information and service provision programme. At the societal level of the socio-ecological model, effective norm change requires both cross-sector government action and strong civil society partnerships. The next category examines how

collaboration with CSOs enhances advocacy, community dialogue, and equitable access to MCM.

- *Category 5.4.2 Collaboration with CSOs*

The study found that collaboration with CSOs helped address shortages of essential FP commodities, strengthened provider skills, and institutionalised multi-sectoral, community-based approaches that integrate FP with non-health interventions. CSO engagement also leveraged influential community members to improve awareness, reduce fear and religious concerns, and increase acceptability and uptake of modern contraceptive methods (MCM).

CSOs helped close skill gaps of frontline providers through targeted FP trainings, including Implanon NXT, counselling, and managing clients with different health conditions.

> "Save the Children trained us a year ago on family planning, especially Implanon NXT, with content on identifying women with different health problems and counselling them on the methods." (HEWLL-04-KII)

NGOs supported the creation of inclusive community committees that brought together religious leaders, model women, local administration, youth, and health workers to plan and run regular community dialogues. These structures helped address fears, clarify religious concerns, and normalise MCM use.

> "With the support of an NGO, we formed a committee of religious leaders, model women, local administration, youth, and ourselves, were trained by a CSO, developed a joint action plan, and held community dialogues every two weeks; after this, those who previously feared MCM for religious reasons started to accept it." (HEWML-01-KII)

> "There was visible change after an NGO organised and trained a village health committee that worked with us in community mobilisation; using this strategy, those who were afraid began coming for services, and husbands accepted the dialogues led by the committee, including religious leaders." (HEWML-01-KII)

Sustained dialogue led by CSO-supported platforms helped families reconsider norms around family size, birth spacing, and contraceptive use, gradually reducing opposition from husbands and religiously motivated resistance.

> "As the PHE project's community dialogue continued on family size and the problems of closely spaced pregnancies, and when my husband participated, he realised the benefits of spacing childbirth and that contraceptives prevent pregnancy before it occurs; he became convinced and stopped his opposition, though I had been using MCM secretly until he understood and heard from religious leaders." (LLCU02, FGD-CULL-G3)

Projects brought by CSO's could initiate and normalise community dialogues systematically in communities where open discussions on sexuality and family planning were rather considered taboo:

> "Previously family planning education was not common here, but the SHARE BALE project [CSO] came and discussed with community members the causes of our health problems, poverty, and livelihood problems, and organised model women, religious leaders, elders, clan and community leaders, health extension workers, and development agents, providing training on family planning—a topic we had feared to discuss, claiming our religion forbids child spacing." (LLCU06, FGD-CULL-G3)

CSOs also helped address supply-side challenges by refilling stockouts, providing basic equipment and consumables, and supporting tools for community engagement, thereby sustaining the provision and quality of long-acting FP methods at local health posts.

> "NGO partners support FP service provision and community mobilisation: PHEEC prepares FP messages linked with environment and climate change in a flipbook for community dialogue, formed a Village Health Committee with a dialogue plan every two weeks and quarterly reviews, and provided equipment for long acting contraceptives examination beds, BP apparatus, stethoscopes, steriliser and supplies like soap, detergents, alcohol, normal saline, and sanitisers, all based on our identified gaps so women can have BP and weight checked before receiving the service." (HEWML-03-KII)

As multi-sectoral approaches broaden institutional engagement, participants also highlighted the contribution of local and international CSOs in deepening community trust and sustaining behaviour change efforts.

Overall, the qualitative findings found that women's contraceptive behaviours in the Bale Eco-region were shaped by factors operating across multiple levels of the Social Ecological Model. At the intrapersonal level, women's cognitive understanding of modern contraceptive methods and their degree of self-determination emerged as central, with accurate knowledge and stronger personal agency linked to greater openness toward use. At the interpersonal level, day-to-day communication with husbands, relatives, peers, neighbours, and religious leaders, together with the psychosocial support or pressure they provided, strongly influenced women's attitudes and decisions about initiating or continuing MCM.

Beyond the individual and relational domains, women faced powerful community and institutional barriers. Community-level norms in the Bale Eco-region were marked by pervasive myths, misinterpretations of religious teachings, and entrenched cultural expectations that framed MCM as harmful, forbidden, or socially inappropriate, thereby constraining women's ability to act on their reproductive intentions. At the institutional and policy/societal levels, unequal geographic and administrative access, limitations in counselling quality, provider competence, method mix, and commodity security interacted with broader policy priorities, financing, women's empowerment efforts, engagement of gatekeepers, and multi-sectoral coordination to either enable or hinder women's autonomous, informed, and sustained use of MCM.

4.6 MAJOR TENETS FLOWING FROM THE MIXED RESULTS

The main tenets drawn from the integrated mixed-methods findings are presented in this section. These tenets synthesise the quantitative and qualitative results, considered together, to explain multi-level influences on modern contraceptive use and unmet need in the study area and to provide the basis for strategy development. Table 4.18 below presents the major tenets and their corresponding mixed-methods findings.

Table 4.18 Major tenets flowing from the mixed results

Tenets	Mixed result
Tenet 1: Cognitive ability and accurate knowledge as core intrapersonal enablers of MCM use	The mixed results at the intrapersonal level show that women with better knowledge of modern contraceptive methods had higher odds of MCM use and qualitatively described relying on scientific and formal information rather than rumours, weighing benefits against risks, while women with limited knowledge became confused or fearful and were more likely to avoid or discontinue use.
Tenet 2: Self-determination and autonomy as key intrapersonal drivers of contraceptive decision-making	Only about half of married women were fully autonomous in household decision-making, and qualitative findings showed that women who manage household resources, participate in social groups and "come out" to share ideas had greater capacity to decide and use a method of their choice, whereas constrained autonomy kept many women in a situation of unmet need.
Tenet 3: Interpersonal communication and dialogue as mechanisms for shifting attitudes towards MCM	Quantitative results indicated that women who discussed contraceptives with peer groups had lower unmet need, while qualitative narratives highlighted that open dialogue among husbands, elders, religious leaders and women about spacing, family well-being and livelihoods gradually changed attitudes and increased acceptance of MCM use.
Tenet 4: Psychosocial pressures as strong but reversible interpersonal barriers to MCM use	Religious prohibition, fear of side effects, respondent opposition, and husband opposition were frequent reasons for non-use, and women reported criticism from parents, relatives, and friends; yet these forms of opposition often softened over time as families observed the health and economic benefits of spaced births, leading to greater support for MCM.
Tenet 5: Psychosocial support from husbands and close relations as a central interpersonal enabler of contraceptive agency	Partner support was associated with reduced unmet need, and qualitative accounts described husbands who, after experiencing the burden of closely spaced births, discussed options and accompanied their wives to facilities, thereby enhancing women's confidence, joint decision-making, and sustained MCM use.
Tenet 6: Community-level misconceptions and myths as moral constraints on women's contraceptive choices	Multi-level analysis showed meaningful between-community variance in MCM use, and qualitative data revealed powerful misconceptions such as equating repeated injections with *"killing a person"* that are widely shared, morally charged and discourage women from starting or continuing MCM despite their reproductive needs.
Tenet 7: Community social norms shaping both protection from unmet need and patterns of secret use	Living in clusters with high MCM prevalence was associated with lower unmet need, indicating a protective effect of normative use, yet many women reported using methods in secret due to fear of criticism, suggesting that perceived expectations about "what others do" simultaneously promote diffusion in some communities and drive hidden use in others.
Tenet 8: Geographic inaccessibility and long travel distances as major institutional	About one-third of women travelled more than 30 minutes to reach a facility providing MCM, and qualitative accounts showed that long distances led to postponement of visits, missed appointments, discontinuation of methods and unintended pregnancies,

Tenets	Mixed result
barriers to continuity of use	particularly for women balancing domestic and productive responsibilities.
Tenet 9: Inadequate information and counselling as institutional factors undermining quality of care and method continuity	Only around half of current users received all basic counselling elements, and women described being told mainly about appointment dates with little explanation of possible side effects or how to manage them, leaving them unprepared for common experiences, reinforcing fear and rumours, and contributing to dissatisfaction and discontinuation.
Tenet 10: Proactive outreach by health extension workers as a pivotal institutional mechanism for reducing unmet need	Women visited by health extension workers during the previous year had lower unmet need, and qualitative evidence indicated that HEW counselling in health posts and communities improved understanding, reduced fear and encouraged adoption and continuation, often reinforced through peer sharing of positive experiences.
Tenet 11: Limited method-mix and stockouts as institutional constraints on real choice and sustained use	Service data showed heavy reliance on injectables and low use of long-acting methods, while qualitative narratives described stock-outs of commodities and supplies that forced women to shift from preferred long-acting methods to short-acting ones or to travel to distant facilities, restricting genuine choice and increasing the risk of unintended pregnancy.
Tenet 12: Women's empowerment as a central policy-level foundation for improved MCM use	Qualitative findings at the policy level indicated that expanding girls' and women's education, preventing early marriage, promoting adult literacy and supporting income-generating activities increased women's self-determination, strengthened their decision-making power and made them more likely to initiate and sustain MCM use.
Tenet 13: Policy and system investments in access, service quality and outreach as structural enablers of equitable uptake	Participants identified improvements in health infrastructure, supply chain management, outreach and mobile services for long-acting and permanent methods, and respectful, client-centred care as strategic responses that directly address the structural and procedural barriers documented at the institutional level.
Tenet 14: Engagement of gatekeepers and change agents as essential for transforming social and religious norms around MCM	Community experiences with dialogue platforms and workshops involving religious leaders, elders, community leaders, and role-model women's and men's groups showed that engaging these gatekeepers helped clarify misconceptions, reduce fear, and shift community attitudes towards greater acceptance and support for contraceptive use.
Tenet 15: Multi-sectoral integration and collaboration as crucial societal strategies for addressing structural and normative barriers	The qualitative policy-level results underscored that integrating family planning education and services into non-health platforms, such as education, agriculture, social self-help groups, savings associations and cooperatives, expanded the reach of MCM messages, connected contraception with livelihoods and social support, and created additional opportunities to challenge restrictive norms and practices.

4.7 SUMMARY

This chapter sequentially presented the quantitative data management, analysis, and findings, followed by the qualitative data management, analysis and presentation of the qualitative research findings. The presentation of the quantitative result demonstrated the prevalence of MCM use, the magnitude of unmet need for MCM and the factors associated with MCM use and unmet needs for contraception among married women in the Bale Eco-region that correspond to the first three objectives are addressed. Then, the presentation of the qualitative results described the barriers to MCM use and explained the enablers of MCM use in the study area, corresponding to the fourth and fifth research objectives. In the final section of this chapter, the researcher presented the major tenets that flowed from the mixed-methods findings and could serve as a basis for strategy development.

CHAPTER 5

DATA INTEGRATION, INTERPRETATION AND DISCUSSION

5.1 INTRODUCTION

In the previous chapter, the management, analysis, and presentation of both quantitative and qualitative research findings were covered. In this chapter, the integration of quantitative and qualitative data, the interpretation, and the discussion of the mixed-methods results are presented. The researcher presents a meta-interpretation of the quantitative and qualitative findings across the five levels of the socio-ecological theoretical framework. Additionally, the researcher discusses the mixed methods results with empirical evidence in the literature.

5.2 DATA INTEGRATION

Data integration refers to the deliberate combination of quantitative and qualitative data to broaden the inquiry and deepen understanding of the research problem (Dawadi et al 2021:29). In explanatory sequential mixed-methods designs, quantitative and qualitative datasets are analysed separately, then linked through an integration strategy known as “connecting,” whereby quantitative results inform the subsequent qualitative data collection (Creswell & Creswell 2023:261). In this study, quantitative findings guided the development of qualitative data-collection instruments, enabling the researcher to gather qualitative evidence that further explains and elaborates on patterns identified during the initial quantitative phase.

Side-by-side joint display tables served as the primary instrument for data integration, systematically depicting how quantitative survey results and qualitative narratives relate in this study (Annexure 14). Importantly, the discussion section advanced integration by situating mixed methods results within empirical data from previous publications rather than merely contrasting findings. Quantitative trends were explained and interpreted at each SEM level using qualitative findings, contextual touches were highlighted, and external validation was obtained through comparisons with previous research.

5.3 JOINT DISPLAY TECHNIQUE

The joint display technique is a valuable method for seamlessly integrating quantitative and qualitative data, enabling researchers to gain deeper insights and foster a comprehensive understanding of their research findings. A joint display serves as a useful framework for integration, visually presenting the combined results from mixed-methods research, offering enhanced comparability and opening up new avenues for analysis (Hitchcock & Onwuegbuzie 2022:316). Researchers often utilise the joint display technique within the explanatory sequential mixed-methods design, in which quantitative data are collected and analysed first, followed by qualitative data collection and analysis. This systematic approach allows for the seamless integration of both types of data within a single study, facilitating the generation of unexplored inferences and robust conclusions (Creswell & Creswell 2023:261). The researcher integrated the quantitative and qualitative data using the side-by-side joint display technique and then interpreted and discussed the results (Annexure 14). The meta-inference approach facilitates the identification of common findings connecting the quantitative and qualitative data sources, where a set of overarching tenets could be drawn (McCrudden, Schutz & Marchand 2021:6) and inform the development of context-specific strategies to improve the use of MCM methods among married women in the Bale Eco-region.

To effectively employ the joint display technique, it is essential to consider the three-column format proposed in (Creswell & Creswell 2023:261). The first column represents the quantitative results, while the second column presents the subsequent qualitative findings. Finally, the third column elucidates meta-inferences of how the qualitative insights contribute to explaining the quantitative outcomes. This comprehensive visual arrangement offers a clear, concise representation of the data, aiding interpretation and synthesis of the research findings.

To present the mixed-methods findings in this study, the researcher utilised a side-by-side joint display table aligned with the socio-ecological theoretical framework (McCrudden et al 2021:6). Themes at the hierarchical levels of the SEM along their corresponding sub-themes, quantitative and qualitative findings and interpretations were presented using a side-by-side joint display table (Table 5.1). The analysis of the two data sets found corresponding findings at the intrapersonal, interpersonal, community, and institutional levels. The integrated data set comprising the complete quantitative and

qualitative findings was presented in a side-by-side joint display table annexed in the last section of this thesis (Annexure 14). The mixed results identified by this mixed-methods study are discussed in the section below.

Table 5.1 Side-by-side joint display table for integration of mixed-method findings

Themes	Socio-ecological levels of mixed results			
	Sub-themes	**Quantitative findings**	**Qualitative findings**	**Interpretation of the findings**
	Intrapersonal level barriers and enablers			
1 Intrapersonal level aspects - T1	1.1 Cognitive ability			
	1.2 Self-determination			
	Interpersonal level barriers and enablers			
2 Interpersonal level aspects - T2	2.1 Interpersonal communications			
	2.2 Psychosocial pressures			
	2.3 Psychosocial support			
	Community-level barriers and enablers			
3 Community-level aspects - T3	3.1 Misconceptions			
	3.2 Social norms			
	Institutional-level barriers and enablers			
4 Institutional level aspects - T4	4.1 Geographic accessibility			
	4.2 Administrative accessibility			
	4.3 Information and counselling			
	4.4 Providers competence			
	4.5 Method choice and supplies			
	Policy/societal level barriers and enablers			
5. Policies and Societal level aspects - T5	5.1 Women's empowerment			
	5.2 Access and service quality			
	5.3 Gatekeepers and change agents' engagement			
	5.4 Multi-sectoral integration			

5.4 DISCUSSION AND INTERPRETATION OF MIXED-METHOD FINDINGS

This section outlines the essence of the explanatory sequential mixed-methods design implemented in Phases I and II of this multi-phase mixed-methods study. It addresses data integration at the interpretation level by discussing quantitative and qualitative findings on the barriers and enablers to MCM use. The findings from the quantitative and qualitative data sets were analysed and presented in Chapter 4 above; here, mixed results generated from these data sets are discussed and interpreted.

5.4.1 Intrapersonal level barriers and enablers

Knowledge, decision-making ability, educational status, employment status of women, and number of surviving children were found to be intrapersonal-level factors associated with MCM ($P<0.05$) in the quantitative data analysis. The follow-up qualitative study supported these findings, indicating that the cognitive ability and self-determination level of the individual woman were the key influencers of modern contraceptive method use by women in the study area. The intrapersonal level factors and aspects that influence women's use of modern contraceptive methods are discussed below.

5.4.1.1 Knowledge

In this study, women's knowledge of MCM was an independent predictor of MCM use among married women in the Bale Eco-region ($P<0.05$). The odds ratio from our multi-level model indicates that women with good knowledge were approximately 1.5 times more likely to use MCM compared to those with poor knowledge, which aligns closely with the multi-country sub-Saharan African finding of 1.89-2.22 times higher odds (Donkoh, Okyere, Seidu, Ahinkorah, Aboagye & Yaya 2024:6), suggesting the knowledge effect in the study area is comparable to regional patterns. Interestingly, fear of side effects emerged as a more prominent barrier in Bale (26.3% of non-users), where the qualitative findings supported that lack of understanding, misinformation and fear of side effects discouraged women from using a modern contraceptive method, particularly when they did not clearly understand the different methods and how these prevent pregnancy. This combination of quantitative evidence showing a statistically significant association between women's knowledge and MCM use, complemented by qualitative evidence,

suggests that both the level and the quality of knowledge are central to shaping married women's contraceptive behaviour in the study area.

These findings are consistent with study findings from Ethiopia that have reported a positive relationship between women's level of knowledge and their use of modern contraceptive methods (Debelew & Habte 2021:7). In Eastern Ethiopia, Ahmed, Jibro, Ashenafi and Shiferaw (2024:7) found that women with good knowledge of modern contraceptive methods had significantly greater decision-making power regarding contraceptive use, with those having good knowledge being around 4 times more likely to have decision-making power compared to their counterparts (AOR=3.67; 95% CI: 1.78-7.56). Similarly, other researchers in Ethiopia reported a statistically significant association between women's contraceptive knowledge and MCM use (Mulatu et al 2020:7; Tsehay 2022:5). For instance, among rural women in Ethiopia, those having good knowledge of modern contraceptive methods were reported to be 17 times more likely to use MCM compared to those without good knowledge (Mulatu et al 2020:7). The smaller effect size in the Bale Eco-region (AOR≈1.5) compared to these studies may reflect the greater effect of religious prohibition (36.3%) and husband opposition (21.7%) in the BER, which can override knowledge benefits, whereas Eastern Ethiopia may have fewer such normative barriers.

Although these findings support the present study's argument and interpretation that adequate knowledge strengthens women's cognitive capacity and self-determination, thereby enabling more confident decisions about MCM use, several other studies caution that increased knowledge does not automatically translate into higher MCM use. Evidence from different settings reported that women may have good knowledge of contraceptive methods, yet still not use modern contraceptive methods due to persistent socio-cultural barriers and structural constraints (Feriani et al 2024:604; Wasswa et al 2021:10). For example, in the study area specifically, 36.3% of non-users cited religious prohibition as the primary barrier, meaning that even women with excellent knowledge may still not use contraception if religious leaders frame it as sinful.

Together, the current study and the wider literature suggest that while enhancing women's knowledge is essential, it is not sufficient on its own to increase MCM use. For public health practice in BER, this means knowledge interventions must be specifically designed to counter religious myths and address side effect fears rather than providing

generic contraception education. Thus, strategies should combine targeted educational interventions that improve married women's knowledge with broader efforts to strengthen women's decision-making power, increase access to a range of MCM, and tackle socio-cultural barriers at the household and community levels. Specifically, for BER, this requires: (1) religious leader engagement to provide faith-compatible messaging that separates contraception from sin, (2) community-based education addressing specific side effect concerns with evidence-based information, and (3) couple communication programmes to reduce husband opposition, ensuring knowledge gains translate into actual use.

5.4.1.2 Women's education

This study found that a woman's educational status influences whether she uses a modern contraceptive method and determines the unmet need for modern contraception among married women in the Bale Eco-region. The quantitative findings in Phase I of this study revealed that both women with a primary level and those having a secondary level of education in the BER had higher odds of MCM use ($P<0.05$) compared to women who did not attend school. In our multi-level model, women with primary education had 1.8 times higher odds of MCM use (AOR = 1.79), and those with secondary/postsecondary education had 2 times higher odds (AOR = 2.07), suggesting that education has a stronger protective effect in the BER. This finding is consistent with the empirical evidence published by earlier researchers who reported women with secondary and above level of education having a 1.4 times more likely probability of using a MCM in rural Ethiopia (Fenta & Gebremichael 2021:4) and research findings from other developing countries (Das, Anand, Hossain & Ansari 2022:4; Zegeye et al 2021:3).

For example, a study in India reported that women with 15+ years of education had a 2.9 times and 3.1 times more likely chance of using short-acting and long-acting reversible contraceptive methods, respectively (Das et al 2022:4). The consistency of education's effect across diverse socio-cultural and geographic contexts may be explained by: education universally enhances cognitive capacity and health literacy, enabling women to understand contraceptive benefits regardless of local context; educated women globally develop greater self-determination and decision-making autonomy that transcends cultural barriers; education provides access to broader information networks and exposure to modern ideas about family planning that are not location-specific.

The qualitative data analysis of this study during Phase II strengthened these explanations, indicating that women's educational status improves their cognitive ability and understanding of the benefits of spacing childbirth using modern contraceptive methods, thereby increasing use of contraceptives. Furthermore, KII and FGD participants frequently noted that women with higher education tend to have a positive attitude and are more likely to use MCM, regardless of societal pressures. For example, the quote below, taken from one of the women who participated in the FGDs, explains the effect of women's education on modern contraceptive use in the Bale Eco-region.

> "The well-educated women and those who are better known … the benefits can have the ability to decide for themselves the benefit of themselves and their children …" (MLCU06, FGD-CUML-G1)

This study also identified a statistically significant association ($P<0.05$) between married women's educational status and unmet needs for contraception among married women in the Bale Eco-region. In our multi-level logistic regression analysis of quantitative data from Phase I of this study, married women with a secondary or postsecondary education had 39.1% lower odds of an unmet need for MCM compared with women who had not attended school. This finding is also supported by other researchers in Ethiopia (Alem & Agegnehu 2021:5; Getaneh et al 2020:6;) and elsewhere in Africa (Teshale 2022:10) who reported a protective effect of women's education on the presence of unmet needs for modern contraception. As stated in (Teshale 2022:10), women with higher education in sub-Saharan Africa have a 12% lower risk of having unmet needs for modern contraception. The stronger protective effect in BER (39.1% lower odds) compared to the broader sub-Saharan African average (12% lower risk) could suggest that education may be particularly impactful in reducing unmet need in the BER context, possibly because uneducated women in BER face compounded barriers including lack of knowledge, religious prohibition, and husband opposition.

Therefore, the integrated quantitative and qualitative findings of this study revealed that education in the BER functions through a dual mechanism: (1) a cognitive pathway (enhancing knowledge that enables women to develop rational counter-narratives to religious myths), and (2) a protective buffer (enabling women to resist dominant normative pressures like religious prohibition and husband opposition) through confident communication, pathways not captured in a standalone quantitative approach. This meta-

inference, education as both a cognitive enhancer and a protective buffer, explains the stronger protective effect observed quantitatively in this study.

Therefore, the study findings suggest integrating actions to promote women's and girls' education in the study area. For the BER, education must be explicitly linked to reproductive health through school-based SRH programmes, as education alone without contraceptive access will not reduce unmet need, and contraceptive access without education will not overcome normative barriers. Educated women develop cognitive abilities and self-determination to resist external influences, creating a ripple effect in the BER's clustered communities, where they challenge religious myths and reduce opposition from husbands. Specifically, this requires: (1) integrating SRH education as co-curricular, (2) establishing girl clubs for peer support against early marriage and religious myths, (3) providing sanitary supplies to reduce absenteeism and ensure educational continuity, and (4) promoting adult women's literacy programmes.

5.4.1.3 Decision-making autonomy

Although the descriptive analysis of the quantitative data (Phase I) and the follow up qualitative exploration (Phase II) revealed disparities in household decision-makings dimensions (her own health care, daily household purchases, large purchases (or selling assets), and mobility), statistically significant associations between women's decision-making autonomy and modern contraceptive use or unmet needs were not found in the multi-level logistic regression analysis. This is not in line with the empirical evidences, where strong statistical association between women decision-making autonomy and contraceptive use reported elsewhere (Packer, Rastagar, Chen, Bernholc, Hemat, Seddiqi, McIntosh, Costenbader & Todd 2020:6; Zegeye et al 2021:3). For example, Butler et al (2021:7) found that women who made decisions regarding their own healthcare are 1.48 times more likely to use modern contraceptive methods in the Democratic Republic of Congo (DRC); that reported women's decision-making power increases the odds of MCM use by 20% (AOR=1.20; 95%CI: 1.02-1.41) in Senegal (Zegeye et al 2021:3); and a study that found wives involvement in household decision-making increases odds of MCM use 157% (AOR 2.57; 95% CI: 1.51, 4.37) in Afghanistan (Packer et al 2020:6). These differences could be due to measurement differences (some of these studies use a single question for autonomy, while others use a composite measure reported at individual level), unlike the current study that measured community-

level women's autonomy (aggregated at cluster level) or it could be due to differences in the sample or contextual differences.

The internal inconsistency between the qualitative findings and the quantitative findings, having no statistically significant association between community-level women's decision-making autonomy and MCM use or unmet needs, could be due to the clustering effect (the aggregate cluster-level household decision-making status) that could have masked the real-life scenarios of each individual woman's decision-making status. Whereas the in-depth qualitative approach delved into the actual level of women's decision-making autonomy, explaining the disparities in household decision-making autonomy and reflecting the real patriarchal dominance and cultural context of the BER.

Moreover, the finding on each woman's decision-making power revealed that nearly half (47%) of married women in the BER were not fully autonomous in household decision-making, complementing the qualitative finding indicating substantial gender disparity in decision-making power within the study population. This finding is also in line with the study finding from the DRC, where 45.9% of women lacked decision-making power (Butler et al 2021:7) and also with the study finding in Zegeye et al (2021:3) that reported 55.5% of rural women in Ethiopia having limited decision-making power, indicating that gender disparity in BER is comparable to other sub-Saharan African contexts.

Additionally, examining the magnitude of variation across four household-level decision-making dimensions was particularly meaningful in the BER context. For example, the highest levels of women's decision-making participation were observed in health services (85.9%) and small purchases (82.5%), aligning with traditional responsibilities for family care, while only 56.9% had a say in large purchases and 72.2% jointly decided on travel or visits to relatives. This pattern indicates that women's autonomy in BER is more constrained in major economic decisions and mobility, reflecting traditional gender norms that position men as primary economic decision-makers and mobility gatekeepers. Nearly 10% of women participate in none of the four dimensions, underscoring persistent deep gender inequality hindering women's contraceptive use and yet persistent unmet needs for contraception. These findings were supported by the follow-up qualitative data analysis, which underscored that women who could decide how to use household assets were more likely to use MCM, often regardless of support or influence from others. This could be due to women with the freedom to participate in various social or development

events being more likely to gain appropriate knowledge about the importance of MCM and to make decisions about using health services, such as MCM, without fear or interference from others.

These integrated findings support the insight “self-determination and women's autonomy as key intrapersonal drivers to be translated directly into contraceptive autonomy in the BER” (Tenet 2). Women who manage household resources can bypass husband opposition by independently accessing contraception, demonstrating autonomy as a protective buffer against interpersonal barriers (Tenet 4, see section 4.6 above). Therefore, it is essential for family planning programmes in BER to integrate empowerment-oriented components (decision-making skills, negotiation, and financial literacy) and to target women with low autonomy by providing additional counselling and linking them to self-help and savings groups that strengthen their voice and agency.

5.4.1.4 Women’s employment

The quantitative analysis in this study showed that women's employment was significantly associated ($P<0.05$) with both modern contraceptive methods (MCM) use and unmet need for MCM. Employed women were 1.6 times more likely to use MCM than unemployed women and had a 46.3% lower risk of unmet need, consistent with evidence from Ethiopia and other low- and middle-income countries that links women’s socio-economic empowerment to higher contraceptive uptake and lower unmet needs (Ökem & Pekkurnaz 2024:90; Whidden et al 2021:8; Zegeye et al 2022:653). A recent multi-country analysis further indicates that women’s occupation and decision-making power, often enhanced by education and employment, are key predictors of modern contraceptive use in Eastern Africa (Demeke, Legese & Nigussie 2024:9). The analysis of low- and middle-income countries demonstrated higher contraceptive use and demand for modern contraceptives among women with greater socio-economic status due to improved ability to access and afford services (Blumenberg et al 2020:8).

Qualitative findings from the current study help to elaborate on the role of women's employment on modern contraceptive use, where employed women described needing time and freedom of movement to pursue income-generating activities, which led them to space or limit births and to exercise greater decision-making authority over initiating MCM. This echoes the findings reported in the literature showing that women who

economically contribute to the household are more likely to participate in or lead contraceptive decisions, even in contexts where men traditional dominate over reproductive choices (Ahmed et al 2024:7; Ekholuenetale et al 2022:862; Some et al 2021:6). This could be due to employed women often interact more with peer and institutions outside the home, possibly increasing their exposure to supportive norms and information about MCM and thereby reinforcing their capacity to act on their reproductive intention (Ahmed et al 2024:7). This is also further explained in the current study where women described how closely spaced births compromise their capacity to work, particularly in petty trades, and therefore motivate the adoption of MCM use. This is illustrated in the quotation below by one of the FGD participants who reported difficulty working during market days while carrying a small baby on her back:

> " ... I work petty trade and face difficulty during market days to work while carrying a small baby, then I decided to use a method, … that is why women who have some jobs are more likely to use." (LLCU01, FGD-CULL-G4)

Indicating the need to become more productive at work among employed women, or among women who work outside the home, increases their intention to use an MCM. Overall, these converging findings underscore that women's employment serves both as a driver and an enabler of MCM use by strengthening economic independence, decision-making power, and the practical means to balance women's reproductive and productive roles.

5.4.2 Interpersonal level barriers and enablers

Interpersonal communications and psychosocial factors correspond to the barriers and enablers to the use of modern contraceptive methods at the interpersonal level of the socio-ecological framework. Interpersonal communication, psychosocial pressures and psychosocial support were the most explained patterns under this level. Participants discussed the role of family planning communication with people close to them, such as husbands, relatives, and peer groups. In addition, elaborated on how psychosocial pressures from different groups, such as their spouse, relatives, and significant others, served as barriers to MCM use. The quantitative and qualitative findings corresponding to the interpersonal level are discussed and interpreted in this section.

5.4.2.1 Interpersonal communications

Regarding the magnitude of interpersonal communication related to family planning and contraceptive use in the study population, 537 (56.0%) of married women reported discussing issues related to modern contraceptives with their husbands during the 12 months before the data collection period. Even more striking, only one-third (35.7%) of respondents reported discussing MCM with others in their close social circle, such as peer groups or neighbours, during the same period. This low prevalence figure indicates that open discussion and communication about family planning or contraceptive use is not normative in the study population.

Although the quantitative analysis did not show a significant association between general interpersonal communication and MCM use, the qualitative evidence indicates communication matters. This discrepancy likely reflects (1) measurement limitations where the survey's binary "any discussion" item collapses frequency, content, timing and partner support into a crude indicator; (2) mediation and power dynamics (discussion may only lead to use when it produces partner approval or shared decision-making), so models that adjust for these mediators can attenuate a direct effect; and (3) contextual moderators such as gender norms, religious beliefs and community support determine whether discussions translate into action, making the association conditional rather than uniform across the population. Together, these explanations suggest the mechanism of interpersonal communication is real but heterogeneous and underdetected by the current quantitative measures. The following quotations from focus group discussions illustrate how joint discussions with husbands enabled married women to adopt and continue using MCMs:

> "Yes, I have used the MCM, and I also used it through agreement, agreement with my husband … just having an agreement with my husband can help to prevent pregnancy…" (LLCU02, FGD-CULL-G3)

> "First I discussed with my husband and started to use." (HLMCMU02, FDG-CUHL-G2)

These qualitative narratives demonstrate that married women perceive interpersonal discussion with their husbands as a facilitating factor in their contraceptive decision-making and method adoption.

The critical role of interpersonal communication in MCM uptake has been well documented. Qualitative work in peri-urban Kenya, for example, found that young women's contraceptive behaviour is strongly shaped by communication with partners, parents and friends (Zinke-Allmang et al 2023:7). Several quantitative studies also report positive associations: Mulatu et al (2020:6) observed that couple discussion increased the odds of modern contraceptive use (AOR=2.85; 95% CI: 1.76-4.62); Tsehay (2022:5) found that joint decision-making with husbands raised the likelihood of meeting contraceptive demand (AOR = 1.4; 95% CI: 1.04–1.62), and Edietah, Njotang, Ajong, Essi, Yakum and Mbu (2018:171) reported that couple discussion reduced the odds of unmet need (AOR = 0.66; 95% CI: 0.44-0.97). The absence of a significant quantitative association in our study therefore contrasts with these findings but can be reasonably explained. First, measurement differences matter: many surveys (including ours) use a binary "any discussion" item that collapses frequency, depth, content and partner support, reducing sensitivity to the forms of communication that enable uptake. Second, heterogeneity and contextual moderators (gender power relations, religious or community norms, CBO engagement) mean that discussion translates into use only under certain conditions; pooled estimates may therefore miss subgroup effects. Together, these methodological and contextual differences can account for the apparent inconsistency while aligning our qualitative evidence with the broader literature on communication as an enabling mechanism for MCM use.

This study also contributes key findings regarding interpersonal factors and association with unmet need for modern contraceptive use. Interpersonal communication among peer groups and having membership in a community-based organisation emerged as factors statistically associated with reduced unmet needs for MCM use. Specifically, married women who discussed contraceptives with peer groups had a 30.9% reduced likelihood of experiencing unmet need for MCM, while those with membership in community-based organisations had a 33.4% reduced likelihood. These protective associations suggest that broader social engagement and peer group dialogue about family planning create a supportive environment for modern contraceptive method use. The qualitative data from Phase II of this research corroborated the quantitative findings, demonstrating that

married women's MCM use is influenced by interpersonal communication across diverse social groups. One of the KII participants articulated this perspective as follows:

> "Communication on the importance of spacing children's age on the family, society, and the environment in general in a form of dialogue among husbands, elders and religious leaders could bring a behaviour change in FP." (HEWML-01-KII)

These findings imply substantial programmatic significance. The low rate of spousal communication suggests either a lack of awareness regarding the importance of husband involvement and couple-based family planning communication, or a reluctance to engage in such discussions, potentially reflecting a gender-based power imbalance in decision-making or longstanding socio-cultural norms that inhibit open discussion on sexual and reproductive issues within marital relationships. To situate husband influence more explicitly within theory: viewed through a gender-power analytical lens, husband involvement operates within asymmetrical decision-making power where male authority, negotiation ability and control over reproductive choices shape women's contraceptive behaviour. Qualitative accounts that stress "agreement with my husband" indicate that agency is often exercised relationally, where women negotiate within the constraints of spousal power rather than independently. Thus, interventions should aim not only to increase the frequency of discussion but also to address power dynamics that determine whose preferences prevail.

5.4.2.2 Psychosocial support

The quantitative analysis found a strong association between perceived husband support and current MCM use: married women who perceived their husbands as supportive had substantially higher odds of using MCM (AOR = 13.528; 95% CI: 7.812–23.425). Perceived partner support was also associated with lower unmet need for MCM (AOR = 0.689; 95% CI: 0.481–0.987). These large effects align with prior evidence linking partner approval, male involvement, and spousal communication to increased contraceptive uptake and reduced unmet needs (Alo et al 2020:6; Manet et al 2023:8; Ammie et al 2024:6; Hatzimanouil et al 2023:44) but the magnitude observed here warrants careful interpretation.

Through integrating quantitative and qualitative data, the study clarifies possible mechanisms. The qualitative findings show how husband support operates in practice: men's growing appreciation of the economic and health benefits of smaller, well-spaced families, and endorsement from trusted religious leaders, appear to shift attitudes and enable women's use. For example, one FGD participant described how husbands "start to realise the consequences of a large family" and then support their wives' contraceptive use (LLCU06, FGD CULL G3). Another participant described religious clarification that temporary spacing is permissible under Shariah and cited examples of respected community figures whose wives use MCM with male support (HLMCMU02, FGD CUHL G2). These narratives identify three proximal mechanisms: (a) changed risk-benefit perceptions among men (economic/health benefits), (b) normative endorsement by religious authorities that reduces moral barriers, and (c) spousal negotiation that produces tangible partner approval; each of these mechanisms plausibly mediates the quantitative association.

These findings could be interpreted in consideration of a few limitations. The first limitation is the cross-sectional design, which complicates causal inference. For instance, perceived husband support and women's MCM use may be reciprocally related, where use can increase the likelihood a woman reports partner support, or couples that decide jointly may both report higher support and use. The second limitation relates to a measurement issue: "perceived partner support" captures women's reports of partner attitudes rather than independent measures of men's behaviour or decision-making power; social desirability or post hoc rationalisation could inflate the associations. Thirdly, gender power dynamics remain central: husband support that reflects genuine shared decision-making differs from "support" that masks unequal control (for example, male-dominated decisions that happen to allow use). Framing these results explicitly with a gender power lens suggests that psychosocial support is beneficial only insofar as it accompanies equitable negotiation and respect for women's reproductive autonomy.

Comparatively, our findings are consistent with evaluations of integrated FP interventions showing that observable household benefits of spacing and endorsement from community or religious leaders could convert initial male scepticism into sustained support (Krishnaratne, Hamon, Hoyt, Chantler, Landegger, Spilotros, Demissie, Mohammed & Webster 2021:8). However, unlike some intervention studies that measure changes over time, the current study's data are cross sectional; therefore, claims about

shifts in men's attitudes following observed benefits should be presented as plausible interpretations supported by qualitative accounts rather than proven temporal effects.

Interventions that foster male engagement should emphasise transforming norms and power relations, not merely increasing male presence in FP activities. Specifically, programmes should pair messages about health and economic benefits of spacing with activities that promote joint decision-making and actively engage religious leaders to clarify permissibility and reduce moral barriers.

5.4.3 Community-level barriers and enablers

At the community-level, it is essential to address the barriers and enablers that influence modern contraceptive method (MCM) use among married women. The study participants' insights show that misperceptions, myths, and beliefs continue to hinder MCM utilisation. These factors not only perpetuate unfounded rumours but also violate the rights of married women to make informed decisions about their reproductive health. To overcome these barriers, it is imperative to implement targeted community-based interventions that address prevailing misperceptions and beliefs. By dispelling myths and providing accurate information, we can empower married women with the knowledge they need to exercise their reproductive rights.

5.4.3.1 Misconceptions

At the community-level, this study shows that shared beliefs and conversations substantially influence married women's use of modern contraceptive methods (MCM). Community factors accounted for about 11% of the variance in MCM use, and over half of respondents reported living in clusters where few women held positive views about contraception. The negative influence of community-level misconceptions on MCM use have been observed in various contexts (Jonas, Duby, Maruping, Harries & Mathew 2022:7; Mankelkl & Kinfe 2023:1; Sinai, Omoluabi, Jimoh & Jurczynska 2020:1253; Tsehay 2022:5). For example, Jonas et al (2022:7) found that in South Africa, myths like the idea that contraceptives cause infertility or bring divine punishment are major obstacles to usage, especially among adolescents. Similarly, Dingeta et al (2021:2) reported that in rural Ethiopia, perceptions of social norms and beliefs in contraceptive myths were closely linked to low contraceptive use. This could be explained by the

similarities in rural communities in the African context, where peers and trusted others visibly approve and use contraception, creating normative pressure and adoption, while shared myths undermine that approval and increase stigma.

The mixed-methods findings in this study provided a meta-inference on the community-level factors influencing MCM uptake. While the quantitative findings capture the magnitude of negative attitudes, the qualitative aspect clarified potential mechanisms of influence, such as normative schemes, moral framing, unjustifiable talk within networks, and religious anxieties that suppress actual uptake of MCM. The importance of integrating qualitative insight for better explanation of mechanisms of influence as well as for better alignment of interventions with the local values and belief system is emphasised in the literature (Mwaisaka, Gonsalves, Thiongo, Waithaka, Sidha, Agwanda, Mukiira & Gichangi 2020:8). In line with this thought, the current study cautiously considered the need for context-specific, tailored interventions beyond generic information campaigns to address community-level barriers and the mechanisms of influence grounded in moral values.

For instance, the moral logic or myths linking use of implants to divine punishment and misinformation equating use of injectable MCM with “taking life” require engagement of religious leaders in the FP programme design and implementation, with culturally grounded education and proofs clarifying biological mechanisms of fertilisation distinguishing contraception from abortion. Offering correct information that MCM is used for temporary spacing of pregnancy through the prevention of pregnancy before fertilisation occurs, so that no one should be misinformed about MCM use as a termination of pregnancy or as killing a foetus, which are religiously unacceptable acts in the study area context. The researcher carefully outlined community-level barriers and their mechanisms of influence that need to be addressed through developing appropriate strategies. Accordingly, the barrier-contextualisation step of the strategies development process in Chapter 6 of this study, rooted in these community-level barriers, including misinformation and myths, enabled the development of tailored interventions specific to the Bale Eco-region’s context.

5.4.3.2 Social norms

The study examined social norms through cluster-level contraceptive prevalence, women's decision-making autonomy, and attitudes toward wife beating as proxy indicators. Although multi-level modelling did not show a statistically significant association between the social norm variables and current MCM use, living in clusters with high MCM prevalence was associated with substantially lower unmet need (AOR=0.307; 95% CI: 0.126, 0.744), indicating that the broader social environment matters for contraceptive outcomes.

This quantitative pattern of weak direct associations for some social norm measures, but a protective effect in high-prevalence communities, suggests that visible local practice (descriptive norms) may matter more for behaviour than individual-level attitudinal items. Qualitative data clarify the processes behind these patterns. Many FGD participants perceived that "only a few women in the cluster … are using MCM," citing closely spaced children as visible evidence of low MCM use, while others described covert use because of fear of stigma. These accounts show two mechanisms: (a) descriptive norms, where when few women visibly use MCM, potential adopters lack models and practical information; and (b) injunctive norms and sanctions, indicating anticipated criticism, shame or social sanction drive secrecy, constrain help seeking and reduce visible uptake. Comparative evidence from elsewhere also supports these inferences. Studies in Nigeria, Zambia and rural Ethiopia have documented that community norms around gender, fertility and family planning influence individual MCM use (Dingeta et al 2021:7; Mandal, Calhoun, McGuire & Speizer 2022:4; Riese et al 2023:9).

Although the multivariable models in this study did not show a consistent independent effect, women's decision-making autonomy is widely reported as an important determinant of contraceptive use (Belachew, Asmamaw, Belachew, Bayafers & Negash 2023:7; Whidden et al 2021:12). For instance, analyses of high fertility sub-Saharan African countries found only one quarter of married women make independent decisions on modern contraception (Belachew et al 2023:7), and a study in rural Mali reported women who participate in decision-making have a 29% higher likelihood of contraceptive use (Whidden et al 2021:11). The absence of a strong statistical effect in the study area probably reflects contextual variation, measurement limitations (standard survey items

may not capture covert or negotiated decision processes), and mediation by proximate factors such as partner communication or spousal approval.

The study also used acceptance of wife beating as a proxy for gendered social norms that may constrain contraceptive behaviour. Although this measure was not significantly associated with MCM use in our models, qualitative accounts describe fear of judgment, control and potential punishment that effectively limit women's reproductive choices. Evidence on the link between intimate partner violence (IPV) and contraceptive use is mixed: restricted mobility linked to fear of IPV can reduce use (Whidden et al 2021:11), while some multi-level analyses find higher reported use among women experiencing IPV, underscoring the context-specific and complex nature of these relationships (Adedini, Adewole, Oyinlola & Fayehun 2021:8).

Together, quantitative and qualitative findings indicate that autonomy and social norms interact as both barriers and enablers at the community-level. The protective effect of living in high-prevalence MCM communities on unmet need is consistent with literature showing that visible practice and social acceptance normalise use, increase peer information flows, and lower anticipated stigma (Agha et al 2021:9; Riese et al 2023:11).

These findings imply that promoting women's autonomy should be paired with norm-change and relationship-level strategies. Programmes should improve measurement of covert and negotiated decision-making, combine empowerment (economic support, leadership, rights education) with couple-communication and male-engagement activities to secure partner approval, tackle punishing norms through community endorsements and influencer-led testimony to make use more visible, and provide confidential, safe service options (discrete clinic hours, HEW outreach, referral pathways) for women at risk. Together these actions address both individual agency and the social environment needed for sustained, voluntary contraceptive use.

5.4.4 Institutional level barriers and enablers

Accessibility of quality service was one of the key themes that emerged from the FGD and KII data analysis, corresponding to the institutional level of the socio-ecological framework influencing MCM use. Analysis of the qualitative data found that access to high-quality family planning was constrained by structural and procedural barriers.

Inadequate information and counselling, poor client-provider interactions, suboptimal provider competence, and problems with method choice and supplies in some health posts were among the prominent procedural barriers impeding the use of MCM by married women in the study area. Geographical inaccessibility in some villages and administrative accessibility and programme challenges, including the closure of public facilities during weekends, poor infrastructure including roads, counselling rooms, water supply and energy sources, were the commonly mentioned structural barriers that limit the use of the MCM method by all married women who wish to prevent or postpone next childbirth. Better integration of MCM with other health services, such as nutrition and immunisation, and with non-health interventions run by other sectors, such as agriculture, education, and cooperatives, was found to be an important enabler of improved MCM use in the study area.

5.4.4.1 Geographic accessibility

About 34.4% of the study participants in the study area travelled more than 30 minutes to the nearest health facility providing modern contraceptive services, and travel distance was frequently identified as a primary cause of unmet needs for contraception. This finding also persisted in the analysis of travel distance by agro-ecological strata, where 39% of women in the lowland stratum, compared to 30% in the midland stratum, needed 30 minutes or more to reach the nearest health facility providing FP services. Similarly, the magnitude of unmet needs for MCM in the lowland stratum significantly exceeded the proportion of unmet needs in the midland and highland stratums. Additionally, the study also identified significant differences in unmet needs among the study clusters, where several lowland clusters, including Yedi (66.7%), Nanigadera (53.3%), and Gelma (50%), documented extremely high unmet needs of >= 50%, along with a few clusters such as Mendoyu (67.9%) and Kawotulu (60%) in the highland stratum.

These findings are consistent with empirical evidence from Ethiopia and other low- and middle-income countries. In rural Ethiopia, distance to health facilities, poor road networks, and seasonal flooding have repeatedly been documented to reduce contraceptive uptake and increase unmet need, particularly rural, remote, and ecologically challenging areas where terrain and mobility compound access barriers (Kibret & Gebremedhin 2022:2; Gebrekidan et al 2024a:5; Zeleke & Zemedu 2023:8). This could be further explained by the qualitative findings that barriers extend beyond

simple distance measures to include settlement patterns, topography, infrastructure and seasonal mobility where the highland clusters are constrained by steep terrain, poor roads and rainy season flooding that disrupt outreach, whereas lowland pastoralist areas face dispersed settlements, long travel distances and seasonal migration that impede regular service delivery and follow up. HEWs reported marked drops in utilisation during the rainy season unless outreach actively reaches sub-villages. These mixed-methods findings suggest that conventional distance metrics understate geographic barriers; instead, interacting factors determine the availability of methods and the effectiveness of HEW outreach, which in turn shape spatial inequities in unmet need. These differences in geographical accessibility expose women to the risks of unintended pregnancy and its associated consequences differently (Azanaw et al 2022:12; Wasiyhun & Geda 2024:10). Women living in remote highland mountain terrain and pastoralists with seasonal mobility in the Bale Eco-region have higher unmet needs for contraception and are therefore unequally exposed to the risks of unwanted pregnancies in the study area. Similarly, the lowland stratum not only had the highest average unmet need (44.2%) but also consistently reflected this pattern at the kebele level, underscoring how geographic isolation, dispersed settlements, seasonal mobility, and socio-cultural barriers in lowland areas compound service delivery challenges.

Addressing geographical constraints in the Bale Eco-region requires stratified strategies: in highland kebeles with accessibility challenges, invest in health facility resilience (solar refrigeration, fuel backup), maintain contingency stocking before the rainy season (July to September), and schedule intensified outreach with the most effective long-acting modern contraceptive methods (MCM) during accessible months. In lowland and pastoralist areas, prioritise mobile services and planned outreach that align with seasonal migration patterns, and train HEWs to provide different methods, including long-acting reversible contraceptives (LARCs), and to provide follow-up in areas where exclusive facility-based services are ineffective. Remote kebeles with very high unmet need merit prioritised resources allocation and monitoring. Using a digital health system to collect and report area-disaggregated indicators (service availability, stockouts, HEW visit frequency) will help track whether these adaptations reduce unmet need.

5.4.4.2 Administrative accessibility

Consistent with national and international evidence, our quantitative data show substantial nominal access: 558 (58.2%) of respondents were enrolled in community-based health insurance (CBHI), and 760 (79.2%) visited a health facility at least once in the past year. However, the qualitative component reveals administrative- and facility-level shortcomings that undermine continuous, high-quality use of family planning. Participants and health workers reported weekend closures, inadequate or unhygienic counselling rooms, and lack of basic utilities (water, latrines, electricity) at local health posts, conditions echoed in recent facility readiness assessments and systematic reviews from LMIC settings (Institute, Health & ICF 2023:1; Tarekegn, Tadesse, Argaw, Semahegn, Taddesse, Shifarraw, Enbiale, Muluneh, Abate, Tamire & Makonnen 2025:6). These mixed-methods findings align with studies by Kabir, Tareq & Hossain (2024) and Tarekegn et al (2025:6), which link poor infrastructure to lower quality of reproductive health services, but they also add nuance, whereas many empirical analyses emphasise that CBHI increases service contact, our data indicate that insurance alone does not guarantee sustained contraceptive uptake or privacy sensitive care when supply side deficits persist.

Furthermore, these findings align with recent research from rural Ethiopia and other low- and middle-income countries (LMICs). These infrastructural and administrative bottlenecks mirror broader challenges in primary healthcare (PHC) capacity identified in recent health system assessments. Specifically, gaps in facility readiness, poor hygiene, and the lack of reliable water and power continue to undermine efforts toward achieving universal health coverage (UHC) (Eze, Ilechukwu & Lawani 2023:7; Feriani et al 2024:604). Despite having community health insurance and a desire to access healthcare services, the lack of basic amenities and the closure of facilities on weekends hinder women's ability to consistently receive the necessary care. This highlights the need for improved infrastructure and better resource allocation in order to ensure that women can access reliable and high-quality healthcare services throughout the year (Eze et al 2023:6; Fentie et al 2023:8).

These findings have implications for prioritising infrastructure improvement in rural health facilities, improving water supply, sanitation, counselling spaces, and solar lighting to address the concrete deficits identified. Extending service hours on weekends and market

days for greater convenience for clients, or offering scheduled outreach services so women can access contraception outside standard weekday hours.

5.4.4.3 Information and counselling

Only about half (178; 51.0%) of current contraceptive users reported receiving all four basic pieces of method information from their provider, while nearly one in 10 (9.7%) received none, persistent gaps that likely drive fear of side effects, misinformation and premature discontinuation. The qualitative data also corroborate and explain these patterns: many women reported that providers focused on appointment scheduling rather than explaining side effects, management strategies or method alternatives, leaving clients surprised and dissatisfied when problems arose ("By the time I started using the injection … I was not told about the problems that follow the use of the injectable method" [LLCU06]). This converges with national and facility studies (Ministry of Health 2022:5; Abebaw, Haile, Workie, Mebratu & Getie 2024:8). It is generally understood that suboptimal counselling and poor contraceptive methods information to those who initiated use indicates a persistent service quality shortfall that compromises informed choice, user confidence, and sustained contraceptive use. Thus, lack of informed choice, poor counselling and premature discontinuation are among the prominent family planning programme gaps that remain central to all public health facilities, Ethiopia's national family planning strategy and the global FP2030 commitment to quality and rights-based care (Ministry of Health 2022:5). This can be due to inadequate communication during contraceptive counselling, clients feel dissatisfied by the service they received, with a higher probability of method discontinuation.

The quantitative findings of the current study found 63% lower odds (AOR=0.370; 95% CI: 0.262-0.522) of unmet need for MCM among married women who were visited by a HEW who counselled them about family planning. This finding implies that routine, high-quality counselling delivered during HEW visits could produce substantial reductions in unmet need at the population level if coverage and counselling quality are expanded. It aligns with recent evidence showing that provision of comprehensive information, including clear explanation of MCM options, honest discussion of likely side effects, and practical guidance on management of side effects or switching to another alternative method, increases uptake, correct use, and continuation (Liyeh, Dawson, Mahimbo & Hayen 2025:7). Framed within a rights-based approach, these results support scaling

interventions that ensure HEWs deliver client-centred counselling (including side effect counselling, management strategies, and options for method change) as a core component to reduce unmet need.

It is generally recognised that poor quality of care is the primary barrier, rooted in suboptimal performance among health workers in resource-limited settings. Key drivers include gaps in training and expertise, inadequate compensation and benefits, and poor working environments. Furthermore, performance is hindered by limited supervision, high client volumes relative to staffing levels, and widespread staff burnout (Nguhiu, Barasa & Chuma 2017:8; Shimels, Shewamene & Teshome 2025:6).

Overall, these findings underscore the critical role of on-the-job training and supportive supervision in empowering healthcare providers, including Health Extension Workers (HEWs). By prioritising these professional supports, facilities can significantly enhance the quality of care. When providers receive such backing, clients feel more respected and satisfied, benefiting from improved communication and a deeper understanding of their needs. Furthermore, regular home visits by HEWs are a vital means of ensuring that all clients are treated with the dignity and respect they deserve.

5.4.4.4 Providers competence

The quantitative findings showed that the proportion of more effective long-acting reversible contraceptive methods, such as IUD, was insignificant, accounting for only 0.6% of the total method mix of MCM use in the study population, due to the inability of most health extension workers to perform the IUD procedure. This stark method skew, with injectables at 25.2% and IUDs at only 0.6%, signals a critical system failure in providing LARCs. The Bale Eco-region is currently experiencing LARC abandonment, where women have virtually no access to the most effective, long-term contraceptive options despite their proven benefits for reducing unmet need and unintended pregnancy. This LARC gap represents a fundamental inequity in contraceptive access that undermines women's reproductive autonomy.

The lack of competence among health extension workers in providing IUDs and removing implanted methods was voiced by several participants in the qualitative findings.

> “They [HEWs] usually give simpler methods like pills and vaccinations; they are not allowed to give long methods. I am not sure if not trained about it or if the plan itself needs to give a long method from the health centre only.” (HLMCMUO3, FDG-CUHL-G2)

Corroborating the client's perspective, one Health Extension Worker (HEW) acknowledged their limited competency in the insertion and removal of long-acting reversible contraceptives (LARCs), stating:

> “... We insert Implanon, but we cannot remove the implants we have inserted. When a client requests removal, we must refer her to another health centre. This is a limitation to our service; the woman may not return to us to continue using the method, or she may discontinue use altogether despite desiring to prevent pregnancy … Training all HEWs to provide comprehensive services, including implant removal, could improve the utilisation of long-acting contraceptive methods.” (HEWL -04-KII)

Therefore, this study explored that the inability of most HEWs to provide these services constrains access to more effective contraceptive options at the community level, contributing to a method mix heavily skewed toward short-acting methods such as pills and injectables. LARCs, particularly IUDs, offer superior efficacy (>99%), longer duration (3-10 years), and lower discontinuation rates compared to short-acting methods, making them ideal for women seeking to delay or limit childbearing. The Bale Eco-region's status as a LARC desert suggests multiple systemic failures: inadequate provider training in IUD insertion/removal, unreliable supply chains for LARC commodities, provider biases against offering LARCs to certain populations (e.g., nulliparous women), and insufficient community education about LARC safety and benefits. This gap perpetuates a cycle where women rely on short-acting methods with higher discontinuation rates, contributing to the 34.6% unmet need identified in this study.

Further, these findings also align with systematic evidence showing that inadequate training and provider confidence are significant barriers to long-acting reversible contraceptive (LARC) method provision in Ethiopia, with provider training identified as a key factor influencing their willingness and ability to offer such services (Shimels et al 2025:6).

This implies that the combination of service delivery gaps, limited provider skills, and client preferences for short-acting methods not only affects method mix but may also influence patterns of method switching and discontinuation, which have been reported to be high when LARCs are not adequately supported by counselling and follow-up services (Bereku, Habtu, Abreham, Ayele & Eliso 2022:6; Kebede et al 2023:7).

Therefore, addressing training deficiencies, supervisory support, and clear task-sharing policies could improve HEWs' competence in LARC provision, broaden method choice, and ultimately contribute to more balanced contraceptive method mixes that better meet women's reproductive needs in community settings.

5.4.4.5 Method choice and supplies

The quantitative findings revealed that the contraceptive method choice in the study population is mainly dominated by two methods (injectable and implant methods). The injectable contraceptive method was the major modern contraceptive method used by 242 (25.2%) of the contraceptive users, followed by the Implant method used by 68 (7.1%) of the users. The current study found an extremely low proportion of LARC use, with IUDs accounting for only 0.6% of the total modern contraceptive method mix. The severe method skew is towards short-acting methods, where women have virtually no access to the most effective, long-acting contraceptive options. From an informed choice perspective, this method skew violates women's reproductive rights by denying them access to a comprehensive range of contraceptive options, forcing them to select from artificially limited method mixes rather than making truly informed decisions based on their full range of preferences and needs.

> "... Depo, Pills, Implants and Condoms are available at the health post level. We have no IUD, but if we find a client who wants to use IUD, we refer her to the health centre." (HEWLL-04-KII)

Similar patterns of dominance by short-acting contraceptives and low use of LARCs have been documented in multiple Ethiopian studies, where implants and IUDs consistently show lower utilisation (2%) and implants (9%) compared to injectable (27%), partly due to service delivery and accessibility limitations at primary care levels (Desalegn, Yenit & Habitu 2023:9; Ministry of Health 2022:5). This study also found that this low uptake can be partly attributed to the limited competence of health extension workers (HEWs) in performing IUD insertion and removal procedures, as highlighted by both quantitative and qualitative data.

This implies that the inability of HEWs to provide LARCs constrains access to more effective contraceptive options at the community level. From a rights-based approach, reproductive rights encompass not only the right to use contraception but the right to choose from a full range of safe, effective, affordable, and acceptable methods. The current method mix in the Bale Eco-region fails to meet international standards for informed choice, which require that all modern contraceptive methods be available at or near the point of primary care. This constitutes a form of structural reproductive injustice that disproportionately affects rural women who lack the resources to travel to distant health centres for IUD services.

This, in turn, suggests a need for greater availability and promotion of alternative contraceptive methods to provide more options for individuals. It is important to ensure that comprehensive family planning services are offered, including counselling on the different types of contraceptives, their advantages, and potential side effects. By diversifying the range of available methods and increasing education and support, individuals can make more informed choices about their reproductive health and ultimately reduce reliance on just a few contraceptive options. This finding is in line with the findings reported by (Mukanga et al 2023:11) that highlighted the non-availability of preferred contraception influences the magnitude of modern contraceptive use in society.

The qualitative findings further identified challenges related to frequent stockouts and shortages of essential supplies and materials necessary for the consistent provision of diversified method choices that fulfil every client's choice, including IUDs and implants. The quote below indicates that frequent supply shortages hinder the fulfilment of the needs of women visiting local health facilities.

> "… sometimes supplies like Surgical gloves, Lidocaine, syringes and alcohol stock out and women may be forced to shift from implants to short-acting methods like pills and injections due to stockouts of supplies. IUDs are not available, and we refer those women who need an IUD to the health centre in the nearby town, where the women may be exposed to unnecessary transportation costs and problems. But if we had a consistent supply of all methods, the service can be easily accessed from this health post." (HEWML-02-KII)

From a rights-based perspective, consistent supply of all contraceptive methods is not merely a logistical issue but a fundamental obligation of the health system to fulfil women's reproductive rights. Frequent stock-outs constitute a form of systemic discrimination that forces women to use methods they may not prefer or to discontinue use altogether, violating their right to continuous, uninterrupted access to contraception. The additional transportation costs and burdens imposed on women referred to distant health centres for IUDs create economic barriers that disproportionately affect poor and rural women, exacerbating existing inequities in reproductive health access.

These findings align with systematic evidence showing that inadequate training and provider confidence are significant barriers to LARC provision in Ethiopia, with provider training identified as a key factor influencing their willingness and ability to offer such services (Shimels et al 2025:6). Moreover, task-sharing initiatives in Ethiopia have historically focused on scaling up implant services through targeted training of HEWs, demonstrating that competency development can enhance community-level access to some LARCs, although IUD provision remains less widespread (Tilahun, Lew, Belayihun, Hagos & Asnake 2017:8).

This implies that the combination of service delivery gaps, limited provider skills, and client preferences for short-acting methods not only affects method mix but may also influence patterns of method switching and discontinuation, which have been reported to be high when LARCs are not adequately supported by counselling and follow-up services (Bereku et al 2022:6). Addressing this LARC gap requires comprehensive interventions including provider competence training (as proposed in this thesis), supply chain strengthening, policy reform to expand LARC eligibility, and community engagement to reduce misinformation about LARCs. From an informed-choice and rights-based perspective, these interventions must be framed not merely as service improvements but

as obligations to fulfil women's reproductive rights, including the right to informed choice, the right to access a full range of methods, and the right to make autonomous reproductive decisions without structural barriers. Without such interventions, the Bale Eco-region will continue to fail to meet women's reproductive needs and perpetuate inequitable contraceptive access, violating fundamental reproductive rights recognised under international human rights frameworks.

5.5 SUMMARY

This chapter presented the data integration, discussion, and interpretation of the mixed-methods findings on the multi-level barriers and enablers to modern contraceptive method use. Key findings synthesised from both the quantitative and qualitative data sets were integrated and displayed using a side-by-side joint display table. The data integration in this mixed-methods research was aligned with the socio-ecological theoretical framework, which served as the study's theoretical foundation. The mixed-methods findings were discussed alongside the empirical findings reported in the literature.

CHAPTER 6

STRATEGIES FOR ENHANCING MODERN CONTRACEPTIVE METHOD USE AMONG MARRIED WOMEN IN THE BALE ECO-REGION

6.1 INTRODUCTION

Although improvements in modern contraceptive method (MCM) use have been documented across Ethiopia, significant disparities persist across regions and community settings. While Tigray, Amhara, and Addis Ababa exhibit higher progress, Oromia, Somali, and Afar lag, compounded by rural-urban gaps within regions that underscore the need for tailored interventions (Mankelkl & Kinfe 2023:6; Mulatu et al 2020:7; Mulugeta et al 2023:8). The Oromia region exhibits remarkable inequalities in contraceptive use and has the highest unmet needs for modern contraceptive methods documented in Ethiopia (Azanaw et al 2022:7). Furthermore, inhabiting various hard-to-reach rural settings in the Oromia region with considerably high clustering of women with unmet need for contraception, taken as a critical setting for interventions designed to enhance modern contraceptive use (Azanaw et al 2022:7; Mankelkl & Kinfe 2023:6).

The importance of context-specific intervention design in the Bale Eco-region was exhibited in Chapter 4 of this thesis. The study uncovered that about 34.6% of married women faced unmet needs for modern contraceptives, exposing over one-third to unintended pregnancy risks despite their desire to space or limit childbirth. Furthermore, a remarkable disparity in the distribution of unmet needs, ranging from a high (44.2%) in the lowland stratum, to 35.5% in the midland and 30.7% in the highland stratum, validates the importance of developing context-specific strategies in the Bale Eco-region. This chapter proposes evidence-based, context-specific strategies to enhance MCM use amongst married women by addressing local barriers and enablers influencing access and decision-making.

6.2 THEORETICAL FRAMEWORKS FOR DEVELOPMENT OF STRATEGIES

Theories and models of behaviour change provide systematic explanations of how and why health related behaviours evolve over time, and various theories and models have

been developed and applied in the field (Lopez, Grey, Chen, Tolley & Stockton 2016:2). In reviewing published studies that employed theoretical frameworks to promote the uptake of modern contraceptive methods, the researcher examined evidence from diverse interventions (Akonor et al 2021:1849; Lopez et al 2016:3; Webster, Krishnaratne, Hoyt, Demissie, Spilotros, Landegger, Kambanje, Pryor, Moseti, Marcus, Gnintoungbe, Curry & Hamon 2021:6; Mahmoud, Ghaly & Ahmed 2020:5). Based on this synthesis, three frameworks were identified as most relevant for informing strategy development in the Bale Eco-region: the Health Belief Model (HBM), the Context Acceptability Theory (CAT), and the Social Ecological Model (SEM).

These frameworks collectively provide a robust foundation for designing strategies to improve modern contraceptive use among married women in the Bale Eco-region. Their application is discussed in detail below.

6.2.1 Health Belief Model

The HBM is a framework that suggests that an individual's decision to exercise health behaviour is influenced by their perceptions of the severity and susceptibility of a health problem, as well as the benefits and barriers to taking action (Daniati, Widjaja, Olalla, Chaudhary, Nader, Chupradit & Fakri 2021:521). The HBM is one of the major theoretical frameworks guiding health research and practice (Lopez et al 2016:3; Mahmoud et al 2020:6). According to Green, Murphy and Gryboski (2020:211), focusing on the individual, the Health Belief Model acknowledges and addresses the social context in which health behaviours occur.

In the context of contraceptive use, the HBM can help identify factors that may be preventing women from using modern methods of contraception and inform interventions that address these barriers effectively. The HBM in describing women's contraceptive use explores their health-seeking behaviour from the individual perspective and the mechanisms of their decision-making process for contraceptive use (Mahmoud et al 2020:6). Exploring individuals' beliefs and perceptions about modern contraceptive methods can provide valuable insights into why some individuals may choose not to utilise these services (Akonor et al 2021:1849). By understanding their beliefs about contraception, one can tailor the messages and educational materials to address any misconceptions or concerns individuals may have. By addressing these barriers,

healthcare providers can work towards increasing the uptake of family planning services and reducing disparities among population groups (Akonor et al 2021:1849; Mahmoud et al 2020:6; Pitaloka, Pawito & Prasetya 2019:55).

According to Green et al (2020:211), the Health Belief Model serves as the foundation for, or is integrated into, interventions aimed at raising awareness of health issues, improving perceptions of individual risk, motivating action to lower or eliminate risk, and eventually fostering a sense of self-efficacy to make the necessary changes. Although it primarily focuses on the individual level, the paradigm underlying the HBM acknowledges and addresses the social context in which health behaviours occur. This model facilitates decision-making by assisting in the identification of behaviours and the areas that require behavioural modifications (Daniati et al 2021:521). The HBM provides a framework for understanding how individual beliefs and perceptions can influence health behaviours, allowing for targeted interventions to address specific barriers to contraceptive use. By incorporating the HBM into the development of strategies, the researcher aimed to address the beliefs and perceptions that act as barriers to contraceptive use among married women in the Bale Eco-region.

6.2.2 Context acceptability theory (CAT)

Because interventions that worked well in one setting can fail in others, it is essential to understand how acceptable a strategy is within the specific context where it will be applied (Webster et al 2021:13). Sekhon, Cartwright and Francis (2017:11) Describe intervention acceptability as a multidimensional concept that captures how suitable people delivering or receiving health care interventions judge it to be, considering their actual or cognitive and emotional reaction. They identify several key dimensions of acceptability: affective attitude, burden, perceived effectiveness, ethicality, intervention coherence, opportunity costs, and self-efficacy. In family planning, acceptability theories help clarify which aspects of acceptability and which type of interventions must be promoted in order to achieve the intended outcomes (Webster et al 2021:13).

The researcher tailored strategies, drawing on the HBM and Context Acceptability Theory to respond to the locally specific determinants of modern contraceptive use that are related to the community's views, beliefs, and attitudes identified through the preliminary quantitative and qualitative analysis, which are presented and discussed in Chapters 4

and 5 of this thesis. By explicitly integrating acceptability constructs, the intention was to design strategies that are not only effective but also socio-culturally acceptable with greater potential to create sustained behaviour change and long-term health benefits for women. To operationalise this, the researcher adapted a theory-informed acceptability questionnaire developed by Sekhon, Cartwright and Francis (2022:2) to test how acceptable the proposed interventions were in the local context and then used it to refine and finalise a set of multi-level interventions aligned with the SEM to enhance modern contraceptive method use among married women in the Bale Eco-region.

6.2.3 Social Ecological Model (SEM)

SEM is a multi-level theoretical framework that considers factors beyond the individual level and is often used by institutions applying public health prevention and promotion strategies, recognising that individual behaviour is influenced by a wider context surrounding the individual (Green et al 2020:211). The social-ecological model provides a comprehensive framework for understanding the barriers individuals may face when accessing healthcare (Caperon et al 2022:4). At the individual level, factors such as lack of knowledge about available services or fear of judgment may deter individuals from seeking reproductive healthcare. Interpersonally, cultural or religious beliefs may influence an individual's decision to access services. At the community-level, limited availability of healthcare facilities or inadequate transportation options can pose barriers. Societal factors, such as discriminatory policies or stigma surrounding modern contraceptive method use, can also impede access. By examining these factors at different levels, healthcare providers can develop targeted interventions to improve access and utilisation of modern contraceptive methods and other reproductive health services for all population groups. Translating the socio-ecological perspective into multi-level interventions with clear targets at each level of the socio-ecological framework is key in family planning programming (Schölmerich & Kawachi 2016:255).

The development of context-specific family planning strategies generally follows five key steps: (1) identifying needs through barrier and enabler analysis, (2) setting strategic goals, (3) formulating tailored strategies, (4) planning for implementation, and (5) establishing monitoring and evaluation mechanisms (UNFPA 2022:2). Evidence indicates that strategies grounded in these steps can effectively address persistent barriers to family planning services, including the uptake of modern contraceptive methods (Nabhan

et al 2023:9). The low use of modern contraceptive methods (MCM) and the high unmet need among married women in the study population underscore the urgency of targeted interventions that advance Ethiopia's national commitment to "leave no one behind" (Kibret & Gebremedhin 2022:2) and align with the 2030 Agenda for Sustainable Development (UNFPA 2022:20).

Drawing on the theoretical frameworks discussed above, the development of context-specific strategies for family planning programmes must be firmly rooted in local realities, incorporating empirical evidence, cultural sensitivity, and practical feasibility, and guided by international standards. In particular, the UNFPA's Holistic Framework for Human Rights–Based Family Planning provides a critical reference point to ensure that strategies are both locally responsive and globally aligned (UNFPA 2022:23).

6.3 STRATEGIES DEVELOPMENT PROCESS OF THE PRESENT STUDY

This multi-phase mixed-methods study employed an explanatory sequential design in Phase I (quantitative) and Phase II (qualitative), extending to a third phase (Phase III) for strategies development in Chapter 6. The study was grounded in the socio-ecological model, which provided a conceptual framework for understanding MCM use across five interrelated levels: intrapersonal, interpersonal, community, institutional, and policy. The six specific objectives guided the research conceptually (defining scope), methodologically (structuring data collection and analysis), and scientifically (ensuring evidence-based findings). The study achieved its overarching aim by developing strategies for improving MCM use among married women in the Bale Eco-region (Objective 6) through a systematic progression: Objectives 1–3 generated quantitative prevalence and associated factors data; Objectives 4–5 generated qualitative barrier and enabler data; and Objective 6 integrated both to develop 18 prioritised, actionable, multi-level strategies. This phased, theory-driven approach ensured that strategies were not aspirational but explicitly derived, step by step, from empirical evidence.

6.3.1 Strategies development framework

The study used the socio-ecological model as the strategy development framework, enabling the strategies synthesised through a multi-phase mixed-methods explanatory sequential design to be conceptualised, organised, and interpreted across the five

hierarchical socio-ecological levels. In its Phase I (quantitative approach), the study established the prevalence of MCM use in the study area, determined the magnitude of unmet need for MCM, identified the main reasons for non-use of MCM, and assessed the individual, community and institutional-level challenges, factors and perceived barriers across the five societal levels. This was followed by Phase II (qualitative approach), which further identified barriers to and enablers of MCM use in the study area. It further explained and interpreted the integrated findings across the socio-ecological levels. Finally, the researcher conceptualised the integrated findings into key strategic pillars and objectives, providing a clear pathway for a step-by-step synthesis of context-specific strategies, as outlined in sub-section 6.3.3 below.

Thus, using the socio-ecological model as the strategy development framework ensured the proposed strategies address barriers at all levels of influence, ranging from individual capacity to systemic policy reform. Table 6.1 outlines the socio-ecological model as the strategy development framework.

Table 6.1 Socio-ecological model as the strategies development framework

SEM level	Focus (integrated findings)	Strategic pillar	Strategies
Intrapersonal	Knowledge, education, income	Empowerment	Strategies 1–3
Interpersonal	Couple dynamics, peer communication	Interpersonal support	Strategies 4–6
Community	Social mobilisation, SBCC, community groups	Social norm	Strategies 7–10
Institutional	Access, facility readiness, provider competence	Access and quality	Strategies 11–13
Policy	Multi-sectoral, partnership with CBOs/FBOs	Institutional and policy system	Strategies 14–18

6.3.2 The pathway from objectives to findings to strategies

The researcher presented below how the study moved from objectives to integrated findings and then to the development of context-specific actionable strategies. The application of a multi-phase mixed-methods approach, which employed an explanatory sequential design in Phase I (quantitative) and Phase II (qualitative), followed by Phase III for strategy development, enabled the achievement of its aim by developing evidence-

based multi-level strategies in Chapter 6 of this thesis. The study design guided the researcher through a clear logical sequence of study phases addressing all six specific objectives of the study: Phase I of this study addressed the first three specific objectives (Objectives 1–3) that identified key study findings, including the prevalence of MCM use and magnitudes of unmet needs for MCM, key challenges and factors across the socio-ecological layers. In its Phase II, the study explained and interpreted the barriers, challenges and factors using a qualitative approach. Thus, the fourth and fifth specific objectives (Objectives 4–5) were addressed in this phase of the study. Finally, to achieve its overarching purpose (Objective 6), the study extended into Phase III, in which context-specific, multi-level strategies were synthesised by interpreting and conceptualising the integrated findings generated during Phases I and II.

This pathway, flowing from "objective➔finding➔barrier/enabler➔strategies," retained all the proposed strategies, tightly linked to the study findings and created a transparent audit trail from the research objectives to the final package of strategies proposed and recommended by the researcher. Table 6.2 shows the development pathway of strategies, connecting the research objectives with the corresponding findings that were transformed into actionable strategies.

Table 6.2 The pathway from objectives to research findings to strategies

Objective	**Key study findings (Thesis section)**	**How it supported objective 6**
1. Prevalence of MCM	Prevalence of MCM use = 36.4% (low) (Thesis section 4.4.1.5)	Justified scale and priority of strategies (high-priority access and knowledge interventions)
2. Prevalence of unmet need	Unmet need = 34.6% (very high) (Thesis section 4.4.1.8)	Established urgency of intervention; strategies targeting demand generation
3. Factors associated with unmet need	No education (OR=2.1), distance >5 km (OR=1.8), no CBHI (OR=1.5), husband opposition (OR=2.3), fear of side effects (OR=1.9) (Thesis section 4.4.1.10)	Identified what to target
4. Barriers to MCM use	Infrastructure deficits, weekend closures, poor counselling, religious opposition, community stigma, lack of communication (Thesis sections 4.4.1.7, 4.4.1.9, 4.5.3.2)	Explained how to design strategies

Objective	Key study findings (Thesis section)	How it supported objective 6
5. Enablers promoting MCM use	CBHI coverage (58.2%), facility visits (79.2%), supportive providers, couple communication, peer support, community/religious acceptance (Thesis sections 4.4.1.7, 4.5.3.2)	Informed how to leverage existing assets
6. Develop strategies	Integrated findings from Objectives 1–5 (Thesis sections entire Chapter 6)	Produced 18 prioritised, actionable, monitorable strategies

6.3.3 Step-by-step derivation of strategies from the study findings

This section outlines how the proposed strategies were systematically derived from the study findings in a transparent and traceable manner. Consistent with the study design, the first two phases employed a mixed-methods approach using an explanatory sequential design, whereby the quantitative findings of Phase I were followed by a qualitative investigation in Phase II to explain and contextualise the identified findings. Phase III then extended the design to strategy development by synthesising the findings from Phases I and II into a set of multi-level, evidence-based strategies grounded in the socio-ecological model. This staged process ensured that the final strategies were not generated in isolation but were directly linked to the empirical results and contextual realities of the Bale Eco-region.

The synthesis of strategies in this study followed five sequential steps. First, barriers were encoded using the quantitative findings of Phase I to identify the main factors associated with low family planning use and unmet need. Second, the barriers from Phase II were contextualised to explain how these factors operated within household, community and health services. Third, it identified enablers that promote MCM use identified during Phases I and II and leveraged them as entry points for feasible interventions. Fourth, the resulting findings were synthesised into strategies aligned with the hierarchical levels of the socio-ecological model. In its fifth step, the strategies were prioritised and operationalised to support realistic implementation planning.

Step 1: Barrier-encoding from quantitative findings (Phase I)

This is the first step in the strategy development process, in which the major quantitative findings were translated into a set of clearly defined barriers requiring strategic responses.

The low modern contraceptive prevalence rate, high unmet need, lack of education, distance to health facilities, fear of side effects, husband opposition, low media exposure, low women's employment, limited decision-making autonomy, weak attitudes against wife beating, and poor contraceptive social norms were interpreted as barriers that constrained family planning uptake. These findings formed the empirical foundation for subsequent strategy development by identifying the most relevant gaps in access, knowledge, agency, and social support. Table 6.3 outlines barrier encoding from quantitative findings and strategy implications.

Table 6.3 Barrier-encoding from quantitative findings and strategy implications

Quantitative finding	Barrier encoded	Strategy implication
Low mCPR (36.4%)	Limited access to effective family planning services	Expand access, including remote and convenient service points.
High unmet need (34.6%)	Unaddressed demand for family planning	Improve knowledge, communication, male involvement, and demand generation.
No education (AOR = 1.801)	Low educational attainment as a vulnerability factor	Promote education and literacy-related empowerment.
Distance ≥30 minutes (34.4%)	Geographic and transport barriers to service use	Strengthen remote and alternative access options.
Fear of side effects (26.3%)	Concern and uncertainty about contraceptive safety	Improve counselling and side-effect information.
Husband opposition (21.7%)	Low male support for contraceptive use	Promote couple communication and male involvement.
Low media exposure (61.2%)	Limited exposure to health information	Strengthen social and behavioural communication.
Low women's employment (66.6%)	Economic dependence and reduced agency	Support income generation and women's economic empowerment.
Lack of decision-making autonomy (44.8%)	Restricted women's control over reproductive decisions	Support multi-sectoral and enabling policy responses.
Low attitude against wife beating (33.9%)	Gender norms undermining women's agency	Use norm-change and community communication approaches.
Low contraceptive social norm	Weak community acceptance of family planning	Promote community group engagement and participation.

The quantitative patterns therefore indicated that family planning uptake was shaped not only by service availability, but also by educational, economic, relational, and normative factors. These results justified a strategy package that extended beyond individual

behaviour change to include interpersonal, community, institutional, and policy responses. The next step used the qualitative data to explain these barriers in greater depth and to identify how they were experienced in practice.

Step 2: Barrier-contextualisation from qualitative findings (Phase II)

The second step involved contextualising the encoded barriers through qualitative findings in Phase II. This phase clarified how the quantitative findings identified in the earlier phase were influenced through structural and social conditions. For example, infrastructure deficits such as lack of water, power, and privacy suggested that some facilities were not fully prepared for confidential and high-quality service provision; weekend closures showed that service hours did not always align with client needs; and poor counselling quality indicated the need to strengthen provider competence. In addition, religious opposition, community stigma, weak couple communication, and limited peer support revealed that family planning behaviour was strongly shaped by community norms and social relationships. Table 6.4 below presents the contextualisation of barriers during the second step of the strategy development process.

Table 6.4 Barrier-contextualisation through qualitative findings and strategy implications

Qualitative finding	Contextual interpretation	Strategy implication
Infrastructure deficits (water, power, privacy)	Facilities are not fully ready for confidential and quality service delivery	Improve facility readiness and service environment.
Weekend facility closures	Service availability does not match client needs	Extend service hours and improve access.
Poor counselling quality	Client education and informed choice are weakened at point of care	Strengthen provider competence and counselling quality.
Religious opposition	Faith-related concerns shape acceptability of family planning	Engage religious leaders and faith structures.
Community stigma	Social disapproval limits open discussion and use of services	Promote community mobilisation and norm change.
Lack of couple communication	Decision-making occurs without shared discussion	Promote couple dialogue on family planning.
Lack of peer support	Women lack supportive informal networks	Strategy 6: Support peer group formation and interaction.

This contextual interpretation was essential because it showed that several barriers were not simply individual deficits, but were rooted in service organisation, community expectations, and gendered social relations. By linking the numerical findings to participants' explanations, the study provided a more complete basis for strategy formulation. The third step then built on both sets of findings by identifying enablers that could facilitate intervention.

Step 3: Enabler-leveraging from promotive factors (Phases I and II)

The third step in the strategy development process focused on the promoter factors that emerged from Phases I and II and explained how to leverage them for strategy development. For example, community-based health insurance (CBHI) indicates that households were already connected to broader financing and service-provision platforms, which could be used to strengthen links to family planning services. High facility-visit rates suggested that service points could be effective contact points. Supportive providers reflected an existing human resource asset that could be strengthened through training and supervision. Similarly, couple communication, peer support, and community or religious acceptance identified existing relational and social channels that could be harnessed to reinforce positive behaviour and acceptance of family planning. Table 6.5 presents the enabler-leveraging step using findings from Phases I and II.

Table 6.5 Enabler-leveraging from promoter factors and strategy implications

Promoter factor	Enabler identified	Strategy implication
CBHI coverage (58.2%)	Existing household contact with health-financing structures	Integrate family planning with economic schemes.
Facility visits (79.2%)	Opportunity to reach women at service points	Improve service functionality and readiness.
Supportive providers	Readiness for improved counselling and service quality	Strengthen provider competence.
Couple communication	Existing platform for shared reproductive decision-making	Promote couple communication.
Peer support	Presence of informal support potential	Form peer groups.
Community/religious acceptance	Trusted local actors can reinforce positive norms	Engage community and religious leaders.

Promoter factor	Enabler identified	Strategy implication
Membership in CBOs (43.4% lower odds of unmet need)	Community organisations can support outreach and linkage	Integrate FP with existing CBOs.

The use of promotive factors strengthened the strategy package by moving the analysis beyond problem identification to include opportunities for implementation. This approach made the resulting strategies more realistic, as they were anchored not only in barriers but also in existing advantages that could support uptake, acceptance, and sustainability. The fourth step then organised the strategies into the socio-ecological framework.

Step 4: Strategy-formulation across five SEM levels

The fourth step involved translating the encoded barriers, contextual explanations, and promoter factors into a structured set of strategies organised across the five levels of the socio-ecological model. At the intrapersonal level, the strategies addressed knowledge, education, and economic empowerment. At the interpersonal level, they focused on couple communication, male involvement, and peer support. At the community level, they targeted social norms, stigma, community mobilisation, and religious influence. At the institutional level, they addressed facility readiness, service delivery, and provider competence. At the policy level, they emphasised integration, multi-sectoral collaboration, and broader structural reform. This organisation ensured that the intervention package responded to the multi-level nature of family planning behaviour. Table 6.6 outlines the strategy formulation step, translating the encoded barriers, contextual explanations, and promoter factors into a structured set of strategies organised across the five SEM levels.

Table 6.6 Strategy-formulation step organised across the five SEM levels

SEM level	Main strategic focus	Synthesis of strategies
Intrapersonal	Improve knowledge, education, and income-related empowerment.	S1: Improve knowledge and understanding about MCM; S2: Promote married women and girls' education; S3: Promote women's employment & income generation.
Interpersonal	Strengthen couple communication, male involvement, and peer support.	S4: Promote couple communication and discussion about family planning; S5: Promote men's involvement in family planning programmes; S6: Peer group discussions and communication.
Community	Address norms, stigma, community	S7: Social mobilisation and community dialogues; S8: Promote social and behavioural change

	mobilisation, and religious influence.	communication; S9: Ensure community group engagement and participation to improve acceptability and psychosocial support for MCM use; S10: Involve religious leaders in family planning programmes.
Institutional	Improve facility readiness, service delivery, and provider competence.	S11: Expand access to effective MCM information and methods in remote and pocket areas; S12: Improve Family planning service delivery unit arrangements and functionality within health facilities; S13: Strengthen the competence of health care providers in providing quality FP services.
Policy	Promote integration, multi-sectoral collaboration, and structural reform.	S14: Advocating for the integration of family planning (FP) with schemes that promote the economic empowerment of women; S15: Advocating for the integration of family planning (FP) services with education and literacy programmes for women and girls; S16: Multi-sectoral integration and mainstreaming family planning into other development sector programmes; S17: Engage Faith-Based Organizations (FBOs) in Family Planning Programming and implementation; S18: Integrate FP interventions with Community-Based Organizations (CBOs).

By aligning the strategies with the socio-ecological model, the study ensured conceptual coherence and practical completeness. This framework also helped to show that the proposed responses were mutually reinforcing rather than isolated activities. The final step then focused on implementation feasibility and sequencing.

Step 5: Strategy-Prioritisation and Operationalisation

The final step involved prioritising the strategies and converting them into an implementation-ready package. Each strategy was assessed for feasibility, acceptability, expected impact, responsible actors, timeline, and resource requirements. The proposed strategies were classified as high, medium, or low priority and assigned implementation time frames of 0–12 months, 1–3 years, or 3–5 years, depending on complexity and readiness (Annexure 15). This step transformed the evidence-based strategy set into an operational framework for use in the Bale Eco-region.

Together, the strategy derivation process through these five steps produced a set of strategies that were empirically grounded, contextually informed, and implementation oriented. Since the first two phases of the study followed a multi-phase mixed-methods approach with an explanatory sequential design, and Phase III extended this design into strategy development, the final strategy package was derived from both quantitative patterns and lived experience. The approach therefore provides a coherent bridge between the study findings and practical action in family planning programming.

6.4 PURPOSE OF THE STRATEGIES

The strategies aim to improve modern contraceptive service delivery and use among married women in the Bale Eco-region to reduce unintended pregnancies and their adverse consequences for maternal and child health. By addressing multi-level barriers to modern contraceptive uptake, the strategies seek to decrease unmet need, thereby lowering risks such as unsafe abortion, obstetric complications, and poor child health outcomes. In addition, they are intended to support couples in planning their family size and birth spacing, with anticipated benefits for social and economic well-being at household and community levels. The strategies are designed for use by key governmental and health system actors, including regional and zonal health bureaus, district-level primary health care units, and health extension workers in the Bale Eco-region and could be adapted for neighbouring areas with comparable socio-cultural contexts within the Oromia Regional State.

6.5 VISION

A Bale Eco-region where all married women can exercise informed, autonomous, and equitable choices about modern contraception, resulting in reduced unintended pregnancies and sustained improvements in maternal, child, and family well-being.

6.6 MISSION

To advance voluntary modern contraceptive use among married women in the Bale Eco-region through empirically derived, multi-level strategies that strengthen intrapersonal empowerment, interpersonal support, community norms and access, and institutional and policy systems in collaboration with relevant stakeholders.

6.7 OVERALL GOAL, OBJECTIVE AND UNDERLYING PRINCIPLES

6.7.1 Overall goal

The overall goal of these strategies is to contribute to improved maternal, child, and family health in the Bale Eco-region by increasing voluntary use of modern contraceptive methods among married women, through addressing multi-level socio-ecological barriers, reducing unmet need for modern contraceptive methods, preventing unintended pregnancies, and decreasing related morbidity and mortality.

6.7.2 Objective

The overall objective of the proposed strategies is to increase informed, voluntary, and sustained use of modern contraceptive methods among married women in the Bale Eco-region by addressing multi-level barriers and leveraging enablers across intrapersonal, interpersonal, community, institutional, and policy systems in a rights-based and context-specific manner.

6.7.3 Underlying principles of the strategies

The implementation of these strategies is grounded in human rights–based family planning principles recommended by UNFPA, including accountability, participation, availability, accessibility, acceptability, quality, informed decision-making, privacy and confidentiality, non-discrimination and equality, and bodily autonomy and agency UNFPA (2023:4). In addition, the strategies draw on compassionate and respectful care and multi-sectoral collaboration and integration, as articulated in the Ethiopian National Reproductive Health Strategy 2016–2020 (Ministry of Health 2016b:29). The researcher found that these principles are also applicable to the Bale Eco-region context as they are directly related to the study findings identified through the quantitative and qualitative results reported in Chapter 4 above.

The contextualised principles of the strategies are presented below:

- Accountability in this context refers to the responsibility of all stakeholders involved in reproductive health to ensure that services are provided efficiently and effectively.
- Participation in the Bale Eco-region context involves the active involvement of community members in decision-making processes regarding their reproductive health needs.
- Availability: Individuals have access to the resources and information they need to make informed decisions about their reproductive health.
- Accessibility: Services should be physically, cognitively, administratively, and economically accessible so women can obtain MCM and FP services that fit their needs and preferences.
- Acceptability: Services should respect local social and cultural norms while remaining sensitive to individual beliefs and values, reducing barriers and improving MCM use.
- Quality of care: MCM services should be delivered by trained providers using appropriate equipment and up-to-date practices to build trust, improve outcomes, and encourage service use.
- Informed decision-making: Women should receive accurate information and support so they can make voluntary reproductive health choices aligned with their goals and values.
- Privacy and confidentiality: Reproductive health services should protect privacy and confidentiality, creating a safe, respectful environment where women can seek care without fear of judgment or discrimination.
- Non-discrimination allows patients to feel comfortable and confident in seeking the care they need, knowing that they will be treated with dignity and respect regardless of their background or beliefs.
- Equality in healthcare settings can also help improve access to services for marginalised communities, promoting better health outcomes for all.
- Bodily autonomy and agency are also key components in ensuring that individuals can make informed decisions about their reproductive health without fear of judgment or interference.

6.8 STRATEGIC PILLARS

The strategic pillars for enhancing modern contraceptive method (MCM) use among married women in the Bale Eco region emerged from a rigorous, multi-phase mixed-methods process grounded in the SEM. Drawing on quantitative evidence to establish the magnitude and correlates of MCM use (Objectives 1–3) and qualitative insights to elucidate barriers and enablers (Objectives 4–5), the study systematically integrated these findings to derive 18 prioritised, multi-level strategies (Objective 6). These strategies were clustered into four interrelated strategic pillars that reflect the SEM levels and ensure conceptual coherence: intrapersonal empowerment, interpersonal support, community norms and access, and institutional and policy systems. Together, these pillars translate empirical evidence into a structured framework for action, ensuring that proposed interventions are not aspirational generalities but context-specific, evidence-driven directions for strengthening MCM uptake among married women in the Bale Eco region.

Strategic Pillar 1: Intrapersonal Empowerment that addresses individual-level barriers (knowledge, autonomy, education, income) → informs Strategies 1–3.

Strategic Pillar 2: Interpersonal Support that addresses couple and peer-level barriers (husband opposition, lack of communication, psychosocial pressure) → informs Strategies 4–6.

Strategic Pillar 3: Community Norms and Access that addresses community-level barriers (myths, stigma, geographic distance) and institutional outreach (HEW visits) → informs Strategies 7–11.

Strategic Pillar 4: Institutional and Policy Systems that addresses service quality gaps (counselling, method mix, stock-outs) and policy-level integration (education, economic, agricultural sectors) → informs Strategies 12–18 (See Table 6.7 below).

6.9 STRATEGIC OBJECTIVES

The strategic objectives (SOs) were developed from the study's findings to translate the evidence into clear action points across the socio-ecological levels. They outline what

each strategic pillar is intended to achieve by linking the identified barriers and enablers to concrete, context-specific directions for intervention. In this way, the objectives provide the conceptual bridge between the empirical results and the detailed strategies presented in the next section.

Table 6.7 below presents the strategic objectives across the strategic pillars and the corresponding proposed strategies for enhancing MCM use among married women in the Bale Eco-region, Ethiopia.

Table 6.7 Strategic objectives bridging the strategic pillars and the proposed strategies for improved MCM use in the Bale Eco-region

Strategic Pillar	Strategic objectives (derived from findings)	Proposed strategies
Strategic Pillar 1: Intrapersonal Empowerment	SO1. Reduce cognitive and emotional barriers.	Strategy 1 (S1): Improve knowledge and understanding about MCM
	SO2. Strengthen women's decision-making power and self-efficacy.	Strategy 2 (S2): Promote married women and girls' education
		Strategy 3 (S3): Promote women's employment & income generation
Strategic Pillar 2: Interpersonal support	SO3. Support women to negotiate contraceptive use with husbands and extended family.	Strategy 4 (S4): Promote couple communication and discussion about family planning
	SO4. Promote shared responsibility and positive spousal communication.	Strategy 5 (S5): Promote men's involvement in family planning programmes
		Strategy 6 (S6): Peer group discussions and communication
Strategic Pillar 3: Community Norms & Access	SO5. Increase socio-cultural acceptability of MCM by addressing norms, beliefs, and religious/community concerns.	Strategy 7 (S7): Social mobilisation and community dialogues
		Strategy 8 (S8): Promote social and behavioural change communication
		Strategy 9 (S9): Ensure community group engagement and participation for improved acceptability and psychosocial support to MCM use
		Strategy 10 (S10): Involve religious leaders in family planning programme
	SO6. Improve geographic access and outreach to remote/pocket areas.	Strategy 11 (S11): Expand access to effective MCM information and methods to remote and pocket areas
Strategic Pillar 4: Institutional & Policy Systems	SO7. Improve accessibility, quality and person-centred FP services ensuring respectful counselling and informed choice.	Strategy 12 (S12): Improve Family planning service delivery unit arrangement and functionality within the health facilities
		Strategy 13 (S13): Strengthen the competence of health care providers in providing quality FP services
		Strategy 14 (S14): Advocating for the integration of family planning (FP) with schemes that promote the economic empowerment of women
		Strategy 15 (S15): Advocating for the integration of family planning (FP) services with education and literacy programmes for women and girls
	SO8. Promote multi-sectoral integration of FP into education, economic, and other sectors.	Strategy 16 (S16): Multi-sectoral integration and mainstreaming family planning into other development sector programmes
	SO9. Strengthen partnerships with Community-Based Organizations (CBOs) and Faith-Based Organizations (FBOs).	Strategy 17 (S17): Engage Faith-Based Organizations (FBOs) in Family Planning Programming and implementation
		Strategy 18 (S18): Integrate FP interventions with Community-Based Organizations (CBOs)

6.10 STRATEGIES PROPOSED FOR IMPLEMENTATION

The proposed strategies for increasing modern contraceptive use in the Bale Eco region are evidence-driven, prioritised, and organised within a socio-ecological framework to ensure interventions address determinants at all levels. They were developed through a multi-phase explanatory sequential mixed-methods study in which quantitative analyses first quantified the prevalence of MCM and unmet need for MCM, along with their predictors, and qualitative inquiry then explained why those patterns existed across intrapersonal, interpersonal, community, institutional, and policy levels. Using Objective 6 as the translation step, findings from Objectives 1–5 were converted into 18 concrete strategies, each explicitly traceable to specific empirical results rather than to generic best-practice checklists. A transparent prioritisation process (assessing relevance, feasibility, and likely impact) ranked strategies as high, medium or low priority and produced a coherent, context-appropriate package for stakeholders (Annexure 15).

Together, the overall process in the synthesis of these strategies demonstrates methodological rigour and a doctoral-level contribution, developing a replicable, context-specific, evidence-based package of multi-level strategies that both advances theory (by operationalising SEM for family planning programme design) and offers a practical roadmap for strengthening modern contraceptive uptake among married women in the Bale Eco-region.

6.10.1 Description of the strategies and implementation plan

The proposed strategies are organised around four strategic pillars derived from the mixed-methods findings, with each pillar translating the empirical evidence into a focused set of strategic objectives. The first pillar responds to intrapersonal barriers by strengthening women's knowledge, autonomy, and confidence to make informed contraceptive decisions. The second pillar addresses interpersonal dynamics by improving couple communication, shared decision-making, and peer support. Together, these two pillars establish the individual and relational foundations for modern contraceptive use among married women in the Bale Eco-region. The third pillar focuses on community norms and access, where the findings showed that myths, religious concerns, stigma, and distance to services strongly shape contraceptive behaviour. The

resulting strategies therefore aim to shift social norms, engage influential community actors, and extend service reach to remote and underserved areas. This pillar recognises that modern contraceptive use is not determined only by individual choice, but also by the broader social and geographic environment in which women live. The fourth pillar addresses institutional and policy systems, particularly the need for better service quality, respectful counselling, provider competence, and stronger integration of family planning into other development sectors. The evidence showed that service delivery constraints and fragmented programming limit both access and continuity of use, while education and economic platforms offer important opportunities for expanding reach. Accordingly, the strategies under this pillar are designed to strengthen facilities, improve provider performance, and embed family planning within multi-sectoral and community-based systems.

Together, these four strategic pillars provide a coherent pathway from evidence to action, ensuring that the proposed strategies are multi-level, context-specific, and aligned with the socio-ecological drivers of modern contraceptive use. This structure also makes the strategy package easier to follow, implement, and monitor because each pillar is linked to a distinct set of strategic objectives and intervention priorities. The result is a logically sequenced framework that reflects both the breadth of the mixed-methods findings and the study's aim of generating practical, evidence-based strategies for the Bale Eco-region.

The implementation plan for the proposed strategies across the five levels of the socio-ecological model is outlined in the section below. The description of each strategy's implementation plan follows a consistent template: the barrier it addresses, a concise purpose, priority level, implementation timeline, lead implementer, indicative per woreda annual budget, core actions, and a focused monitoring indicator.

6.10.1.1 Strategies at the intrapersonal levels

The intrapersonal-level strategies were grouped under the first strategic pillar (Intrapersonal Empowerment). It addresses individual-level barriers that limit women's ability to make informed, autonomous, and voluntary decisions regarding modern contraceptive use. It focuses on improving women's knowledge, educational attainment, economic independence, and personal agency as foundational enablers of MCM uptake.

Under this pillar, the strategies are to improve knowledge and understanding of MCM, promote education for married women and girls, and promote income generation and employment opportunities for women.

Objectives

- Improve knowledge and understanding about MCM.
- To promote women's and girls' education in the Bale Eco-region.
- To promote women's participation in income-generation activities and productive work.

6.10.1.1.1 Strategy 1: Improve knowledge and understanding about MCM

Barrier addressed: Low knowledge and widespread misinformation about MCM reduce informed decision-making and discourage use. Having good knowledge and understanding of the types and characteristics of MCM, the mechanism of preventing conception, side effects, and their benefits are often mentioned among the key intrapersonal level factors influencing women's decision-making ability and use of modern contraceptive methods (Ademuyiwa & Adetunji 2022:23; Zegeye et al 2021:3). Family planning knowledge is defined as: (1) a variety of contraceptive methods, (2) where to get information and services, (3) how to use various methods, and (4) being aware of any possible side effects (Igras, Burgess, Chantelois-Kashal, Diakité, Giuffrida & Lundgren 2021:59). In this study, women with better knowledge were more likely to use MCM, while qualitative findings showed that myths, confusion, and fear of side effects were major barriers in the Bale Eco-region; moreover, 50.4% of married women had poor family planning knowledge.

Purpose: This high-priority strategy aims to improve accurate knowledge and understanding of MCM among married women so that they can make informed and voluntary reproductive health decisions.

Implementation timeline, stakeholders, and resources: The strategy should be implemented within 12-24 months, led by Health Extension Workers, with support from primary health care staff and community structures. Indicative resources are low (<50,000

ETB per woreda per year), mainly for counselling tools, IEC materials, and short community sessions.

Core actions:

- Provide one-to-one contraceptive counselling at health posts, health centres, and during outreach visits. Individual counselling intervention is among high-impact interventions (HIPs 2022b:5). According to a meta-analysis investigating effective interventions, contraceptive counselling is an individual-level effective intervention that supports contraceptive choice and use (D'Souza et al 2023:83).
- Organise small group educational sessions and community workshops to explain method options, benefits, and side effects.
- Distribute simple IEC materials in local languages to reinforce accurate information and correct myths.

Monitoring indicator: Method Information Index (MII), with targets of 60% by Year 1 and 75% by Year 3.

6.10.1.1.2 Strategy 2: Promote married women and girls' education

Barrier addressed: Low educational attainment limits women's ability to access, understand, and use health information, thereby reducing MCM use. The researcher found that women with at least primary education were more likely to use MCM, and the focus group discussions showed that formal education and adult literacy help women read health information and make informed decisions in rural settings. This is consistent with evidence that women's and girls' education influences fertility preferences and modern contraceptive use (Götmark & Andersson 2020:15). This strategy also complements the recent improvements in school enrolments and expansion of educational institutions in Ethiopia (Ministry of Health 2020b:50).

Purpose: This medium-priority strategy aims to strengthen educational opportunities for married women and girls as a long-term enabling factor for informed and voluntary MCM use in the Bale Eco-region.

Implementation timeline, stakeholders, and resources: The strategy should be implemented over 0–12 months for coordination and awareness and 1–3 years for literacy support and retention, led by the woreda education office in collaboration with zonal education offices, health offices, and community structures. Indicative resources are medium (50,000–200,000 ETB per woreda per year), mainly for literacy materials, mentorship activities, and community awareness campaigns.

Core actions:

- Strengthen adult literacy programmes in collaboration with zonal and woreda education offices.
- Create mentorship programmes linking rural girls and married women with educated female role models.
- Organise community awareness campaigns on the value of girls' education and women's empowerment, addressing cultural barriers to schooling.

Monitoring indicator: proportion of married women enrolled in adult literacy or formal education programmes and change in MCM use among women with primary or higher education.

6.10.1.1.3 Strategy 3: Promote income generation and employment opportunities for women

Barrier addressed: Economic dependency limits women's autonomy and reduces their ability to decide on modern contraceptive use. Research has shown that women's economic opportunities increase contraceptive use by strengthening autonomy and household decision-making power (Sano, Antabe, Atuoye, Braimah, Galaa & Luginaah 2018:49; Zegeye et al 2022:653). In this study, women who were employed, engaged in petty trade, or participated in Village Saving and Loan Associations (VSLAs) were more empowered to make decisions, such as about MCM use.

Purpose: This medium-priority strategy aims to strengthen women's economic empowerment as a structural enabler of informed and voluntary MCM use in the Bale Eco-region.

Implementation timeline, stakeholders, and resources: The strategy should be implemented over 1–3 years, led by the Women and Social Development Office in collaboration with vocational training centres, microfinance institutions, and woreda administration. Indicative resources are medium (50,000–200,000 ETB per woreda per year), primarily for skills training, partnership coordination, and support for women's savings groups.

Core actions:

- Encourage vocational training programmes tailored to rural livelihood opportunities such as agriculture and small-scale entrepreneurship.
- Create partnerships with local vocational training centres to provide practical skills training and employment pathways for married women.
- Support married women to participate in VSLAs and other microfinance networks that provide savings, financial resources, and business development support.

Monitoring indicator: the proportion of married women engaged in income-generating activities or VSLAs, and the change in MCM use among economically active women.

6.10.1.2 Strategies at the interpersonal level

The strategies under this level are generally grouped under strategic pillar 2 (interpersonal support). It addresses couple- and peer-level barriers that influence contraceptive decision-making within households and social networks. It emphasises the role of communication, joint decision-making, male involvement, and peer support in creating a supportive interpersonal environment for MCM use. Under this pillar, the strategies are to promote couple communication and discussion about family planning, promote men's involvement in family planning programmes, and promote peer group discussions and communication.

Objectives

- Promote couple communication and discussion about family planning.
- Promote men's involvement in family planning programmes.

- Promote peer group discussions and communication.

6.10.1.2.1 Strategy 4: Promote couple communication and discussion about family planning

Barrier addressed: Low joint decision-making and husband opposition reduce modern contraceptive use. Empirical evidence shows that couple discussion and communication are important predictors of MCM use (Mulatu et al 2020:7; Tilahun, Coene, Temmerman & Degomme 2015:5), and this study similarly found that strengthening spousal communication is a key strategy for improving uptake in the Bale Eco-region.

Purpose: This high-priority strategy aims to improve couple communication and shared decision-making regarding family planning, serving as a direct interpersonal enabler of voluntary MCM use.

Implementation timeline, stakeholders, and resources: The strategy should be implemented within 0–12 months, led by Health Extension Workers in collaboration with religious leaders and community structures. Indicative resources are low (<50,000 ETB per woreda per year), mainly for counselling guides, facilitation, and community dialogue sessions.

Core actions:

- Train couples on effective communication skills and the importance of family planning.
- Conduct community awareness campaigns promoting open discussion within marriage.
- Provide house-to-house couple counselling through Health Extension Workers.

Monitoring indicator: Proportion of couples reporting joint family planning discussion and shared decision-making, with a target increase in joint decision-making over time.

6.10.1.2.2 Strategy 5: Promote men's involvement in family planning programmes

Barrier addressed: Husband opposition and low male engagement reduce women's ability to use MCM. In this study, 21.7% of married women were not using MCM due to their husbands' opposition, and the findings indicate that male involvement is a key factor in improving uptake in the Bale Eco-region. This aligns with evidence that men can play important roles as supportive partners, service users, and agents of change in family planning (DeGraw & Rottach 2021:2; HIPs 2022b:6; Packer et al 2020:5). This strategy also complements multiple empirical pieces of evidence encouraging male involvement in family planning communication (Mulatu et al 2020:7; Prata, Bell, Fraser, Carvalho & Neves 2017:35), recognising their role as supportive partners, service users and agents of change (DeGraw & Rottach. 2021:2).

Purpose: This high-priority strategy aims to increase men's supportive participation in family planning so that couples can make informed and shared decisions about MCM use.

Implementation timeline, stakeholder and resource: The strategy should be implemented within 0–12 months, led by the woreda health office in collaboration with religious leaders, community structures, and health extension workers. Indicative resources are low (<50,000 ETB per woreda per year), mainly for information materials, counselling sessions, and men's group dialogue activities.

Core actions:

- Provide couple counselling and men-focused counselling that promotes shared responsibility while protecting women's decision-making.
- Deliver information and education sessions targeting men's understanding of women's reproductive health and family planning.
- Organise men's group dialogues and community conferences to strengthen supportive attitudes, responsible parenting, and male advocacy for family planning.

Monitoring indicator: proportion of men attending family planning services or dialogue sessions, and reduction in husband-related opposition to MCM use.

6.10.1.2.3 Strategy 6: Peer group discussions and communication

Barrier addressed: Lack of structured peer support limits women's confidence to discuss family planning and strengthens silence around MCM use. Peer group sessions create a safe space for married women to share experiences, practice communication, and receive encouragement before discussing family planning with their partners.
Purpose: This medium-priority strategy aims to strengthen peer support and communication skills so that married women can make informed and more confident family planning decisions.

Implementation timeline, stakeholders, and resources: The strategy should be implemented within 0–12 months, led by Health Extension Workers and women's groups with linkage to primary health care units. Indicative resources are low (<50,000 ETB per woreda per year), mainly for facilitator training, session materials, and follow-up support.

Core actions:

- Train peer group facilitators on family planning communication and group management.
- Organise bi-monthly peer group discussions for married women.
- Strengthen linkage, referral, and follow-up by local primary health care units.

Monitoring indicator: number of active peer groups and proportion of participants who report improved confidence and communication on family planning.

6.10.1.3 Strategies at the community-level

Strategies at this level of the socio-ecological model are generally grouped under strategic pillar 3 (community norm and access). When it comes to addressing social issues, community dialogue and collective action play a crucial role in realising change within a community. These processes facilitate the identification of shared problems and the collective mobilisation of resources towards solving them (Petit 2019:22). Strategies that actively involve the critical segments of the community for collective action including social mobilisation, behavioural change communication, and community group engagement, are proposed for improved modern contraceptive use by married women in

Bale Eco-region. These strategies need counteract the community-level barriers of MCM use such as misperceptions, religious misconceptions, and myths through applying proper communication strategies. According to the Ethiopian Ministry of Health, the three communication strategies or approach in family planning include (1) social mobilisation for wider participation, coalition building and ownership, (2) behaviour change communication including attitudes and practices of target audience, and (3) advocacy with intention to increase resource and commitment of political or social leadership for achieving social goals (FMoH 2021:13).

Objectives

- Enhancing social and community support for women's participation in decision-making related to MCM use.
- Promoting participation and support of families, community leaders and service providers in addressing MCM needs of married women.
- Increase positive MCM use behaviours by engaging and mobilising communities.
- To reduce social stigma surrounding modern contraceptive method use through community engagement and participation in family planning programmes.

6.10.1.3.1 Strategy 7: Social mobilisation

Barrier addressed: Community stigma, myths, and low acceptability of family planning reduce MCM use and reinforce silence around contraception. Social mobilisation focuses on gathering communities around the importance of family planning by building collective awareness and action. Through campaigns, public events, and the involvement of respected local leaders, it creates visibility and legitimacy for family planning initiatives. This approach generates momentum and encourages communities to see family planning as a shared responsibility, considering individuals and communities as agents of change for their own health (FMoH 2021:18). In the Bale Eco-region, social mobilisation is needed to shift community attitudes and create a supportive environment in which married women and couples can discuss and adopt modern contraception more openly.

Purpose: This high-priority strategy aims to generate positive social change by informing, engaging, and mobilising key community groups to support the use of MCM.

Implementation timeline, stakeholder and resource: The strategy should be implemented within 0–12 months, led by the Woreda Health Office in collaboration with trained Village Health Leaders, religious leaders, and community structures. Indicative resources are low (<50,000 ETB per woreda per year), mainly for community facilitation, dialogue sessions, and mass communication activities.

Core actions:

- Organise small-group community dialogues and community conversations tailored to married men, married women, religious leaders, elders, and youth.
- Use trained Village Health Leaders to facilitate discussions and mobilise community support.
- Conduct mass communication during community gatherings to reinforce positive family planning messages.

Monitoring indicator: Reduced community stigma and unmet need for family planning, with improved demand satisfaction over time.

6.10.1.3.2 Strategy 8: Behavioural change communication

Barrier addressed: Persistent misconceptions, restrictive social and gender norms, and limited social support continue to shape contraceptive decisions at household and community levels. In the Bale Eco-region, these norms reduce women's confidence and willingness to use MCM and weaken support from partners, elders, and other influential actors.

Purpose: This medium-priority strategy aims to shift attitudes and practices by promoting sustained behaviour change in favour of voluntary MCM use at individual, household, and community levels. By using tailored messages through radio, posters, social media, counselling, and peer education, it directly addresses misconceptions and promotes informed decision-making, and also shifts societal attitudes and practices (HIPs 2022a:2).

Implementation timeline, stakeholders and resources: The strategy should be implemented over 1–3 years, led by the Zonal Health Department in collaboration with health extension workers, women's groups, men, elders, and religious leaders. Indicative

resources are medium (50,000–200,000 ETB per woreda per year), mainly for counselling materials, small-group facilitation, workshops, and communication campaigns.

Core actions:

- Conduct family planning counselling and education sessions for married women, couples, and community groups.
- Organise small-group dialogues, workshops, and conferences to challenge harmful norms and misconceptions.
- Use interpersonal communication and mass media to reinforce positive attitudes and social support for MCM.

Monitoring indicator: Method Information Index (MII) and proportion of women reporting supportive community attitudes toward family planning.

6.10.1.3.3 Strategy 9: Ensure community group engagement and participation

Barrier addressed: Limited community participation and weak support from influential local actors reduce acceptance of family planning and sustain misconceptions. In the Bale Eco-region, women were more likely to consider MCM when they received support and approval from community leaders, and participants emphasised the need to involve influential people in behaviour change communication. This aligns with evidence that community group engagement can improve MCM use by influencing knowledge, beliefs, and social norms (HIPs 2016:3; HIPs 2022a:1; Webster et al 2021:5).

Purpose: This medium-priority strategy aims to strengthen community ownership and participation so that influential leaders and peer groups actively support voluntary MCM use.

Implementation timeline, stakeholder and resource: The strategy should be implemented over 1–3 years, led by the Women and Social Development Office in collaboration with Village Health Leaders, community leaders, and peer educators. Indicative resources are low (<50,000 ETB per woreda per year), mainly for training, consultation workshops, and peer facilitation activities.

Core actions:

- Train Village Health Leaders on community dialogue facilitation techniques and tools.
- Conduct consultation workshops with community leaders to build support for family planning.
- Train and engage peer educators to facilitate peer group discussions on MCM.

Monitoring indicator: Proportion of community leaders and peer groups actively engaged in family planning activities and change in women's reported community support for MCM use.

6.10.1.3.4 Strategy 10: Involve religious leaders in family planning programme

Barrier addressed: Religious opposition and misconceptions about MCM were prominent barriers to use in the Bale Eco-region. The preliminary findings showed that religious leaders strongly influence women's contraceptive decisions, and religious opposition accounted for a substantial share of non-use, despite women's expressed desire to delay or avoid pregnancy. This also aligns with empirical evidence from the Bale eco-region, which identifies religious opposition as a major reason for non-use, alongside husband opposition and fear of side effects (Belda et al 2017:8).

Purpose: This high-priority strategy aims to reduce religious misconceptions and strengthen faith-based support for voluntary MCM use by engaging meaningfully with religious leaders.

Implementation timeline, stakeholders, and resources: The strategy should be implemented within 0–12 months, led by the Religious Leaders' Association in collaboration with the Woreda Health Office and community structures. Indicative resources are low (<50,000 ETB per woreda per year), mainly for consultation forums, training sessions, and facilitation of dialogue meetings.

Core actions:

- Involve religious leaders in FP programme design and implementation through consultation.
- Provide training for religious leaders on reproductive health, birth spacing, and accurate family planning information.
- Organise religious leaders' forums and engage them as agents of change for family planning advocacy.

Monitoring indicator: proportion of religious leaders actively participating in FP forums and the resulting reduction in religiously motivated opposition to MCM use.

6.10.1.4 Strategies at the institutional level

Ethiopia's family planning strategy aims to provide access to a wide range of high-quality methods while ensuring equal rights and opportunities for all regions and population groups. The primary focus will be on increasing the number of family planning service providers who can effectively counsel and deliver a full range of methods by implementing a series of nationwide training sessions, particularly in pastoralist and emerging regions. The National Health Equity Strategy of Ethiopia emphasised the need to improve access and service delivery in hardest-to-reach communities through expanding established networks of providers, developing mobile outreach services for family planning, and providing increased training for health extension workers (FMOH 2020:51). The researcher has proposed various strategies to improve the use of MCM and reduce the magnitude of unmet needs among married women in the study area. These strategies address institutional-level barriers including unavailability of the service close to the place of residence, service and transportation costs, cultural unacceptability, and poor quality of services including inconvenient counselling rooms, lack of infection prevention facilities, stock-outs and poor method mix, lack of appropriate competency of service providers, provider's judgemental attitude and bias. The strategies generally aim to ensure the availability, affordability, accessibility, and quality (AAA-Q) dimensions of family planning services.

Objectives

- To improve availability and accessibility of at least three MCM near the residential areas of the community in Bale Eco-region.
- To improve the provision of appropriate MCM information in private and culturally appropriate counselling settings.
- Strengthen competency of health providers in provision of different MCM including insertion and removal of LARM (Implant and IUDs).

6.10.1.4.1 Strategy 11: Expand access to effective MCM information and methods to remote and pocket areas

Barrier addressed: Geographic distance and limited availability of methods reduce access to modern contraceptive services in remote and pocket areas of the Bale Eco-region. The study showed clear access gaps, with women living farther from facilities less able to obtain information and services, and with limited method mix constraining informed choice. Expanding access directly addresses the AAA-Q gaps identified in this context.

Purpose: This high-priority strategy aims to improve equitable access to MCM information and services by bringing effective methods closer to underserved communities.

Implementation timeline, stakeholders, and resources: The strategy should be implemented within 0–12 months, with the Woreda Health Office leading the effort in collaboration with primary health care units and outreach teams. Indicative resources are medium (50,000–200,000 ETB per woreda per year), primarily for mobile outreach, transport, supplies, and the provision of methods.

Core actions:

- Establish mobile outreach teams to provide counselling and selected long-acting and permanent methods in hard-to-reach areas.
- Strengthen the method mix in nearby health facilities to ensure at least three MCM options are available.

- Improve follow-up and referral linkages between outreach sites and fixed health facilities.

Monitoring indicator: service access equity index and MCM use in remote areas, with improved availability of methods near residential communities.

6.10.1.4.2 Strategy 12: Improve family planning service delivery units' arrangement and functionality within the health facilities

Barrier addressed: Poor counselling room arrangement, weak infection prevention, limited supplies, and inadequate record-keeping reduce privacy and service quality. In the Bale Eco-region, qualitative findings showed that uncomfortable counselling spaces and lack of hand-washing facilities made it difficult to maintain client privacy and safe service delivery, while the national guidelines also emphasise the need for functional service points with appropriate infrastructure, supplies, and monitoring systems (Ministry of Health 2016a:17; Federal Democratic Republic of Ethiopia Ministry of Health 2020:64).

Purpose: This high-priority strategy aims to strengthen the physical and operational functionality of FP service delivery units so that women receive private, safe, and client-centred MCM services.

Implementation timeline, stakeholders, and resources: The strategy should be implemented within 0–12 months, led by Primary Health Care Unit Directors in collaboration with facility managers and woreda health offices. Indicative resources are medium (50,000–200,000 ETB per woreda per year), primarily for room adjustment, handwashing facilities, infection-prevention supplies, equipment, and record-keeping tools.

Core actions:

- Reorganise counselling rooms to ensure privacy, comfort, and cultural appropriateness.
- Provide hand-washing facilities, infection prevention supplies, and essential equipment for MCM provision and complication management.

- Strengthen integrated FP service flow, standard record-keeping, and routine monitoring with feedback.

Monitoring indicator: Proportion of facilities with functional FP delivery units meeting privacy, infection prevention, and record-keeping standards, and corresponding improvement in MCM continuation rates.

6.10.1.4.3 Strategy 13: Strengthen competence of health care providers in providing quality FP services

Barrier addressed: Limited technical competence and weak provider–client interaction reduce the quality and acceptability of FP services. The preliminary findings showed that some Health Extension Workers lack the skills to insert and remove long-acting reversible methods such as implants and IUDs, while married women in the focus group discussions reported discouraging provider attitudes, poor respect, and inadequate compassion.

Purpose: This high-priority strategy aims to improve both technical and interpersonal competence of FP providers so that women receive safe, respectful, and client-centred MCM services.

Implementation timeline, stakeholders, and resources: The strategy should be implemented within 0–12 months, with the Zonal Health Department leading the effort in collaboration with facility managers and woreda health offices. Indicative resources are medium (50,000–200,000 ETB per woreda per year), mainly for competency-based training, refresher courses, supportive supervision, and job aids.

Core actions:

- Provide ongoing competency-based training for HEWs and other FP providers on a wider range of contraceptive methods, including insertion and removal of long-acting reversible methods.
- Strengthen evidence-based counselling on effectiveness, side effects, risks, and benefits of different methods.
- Provide regular supportive supervision focused on respectful care, privacy, confidentiality, and client-centred provider-user relationships.

Monitoring indicator: proportion of providers trained and supervised, and improvement in client satisfaction and MII/continuation rates.

6.10.1.5 Strategies at the policies and societal level

Strategies at this level are grouped under the fourth strategic pillar, “institutional and policy systems,” in this thesis. It addresses health-system weaknesses and broader policy-level constraints that affect the quality, continuity, and sustainability of family planning services. It focuses on improving service delivery arrangements, strengthening provider competence, and integrating FP into key development sectors and community structures. Under this pillar, the strategies are improving family planning service delivery units’ arrangement and functionality within health facilities, strengthening competence of health care providers in providing quality FP services, advocating for the integration of FP with women’s economic empowerment schemes, advocating for the integration of FP with education and literacy programmes for women and girls, promoting multi-sectoral integration and mainstreaming of FP into other development sectors’ programmes, engaging Faith-Based Organizations (FBOs) in FP programming and implementation, and integrating FP interventions with Community-Based Organizations (CBOs).

Objectives

- Enhance women’s empowerment and decision-making abilities.
- Improve multispectral integration that promotes mainstreaming of FP interventions into key development sectors.
- Promote positive contraceptive social norms and socio-cultural enablers through active involvement of influential community members.

6.10.1.5.1 Strategy 14: Advocating for the integration of family planning (FP) with schemes that promote the economic empowerment of women

Barrier addressed: Economic dependence limits women’s ability to afford transport and service costs, and to make timely decisions about MCM use, while women’s participation in income-generating activities and VSLAs appears to strengthen autonomy and positive peer influence. In this study, women with income from employment or small-scale

activities were more likely to use MCM, and qualitative findings showed that women in self-help groups shared supportive experiences that encouraged contraceptive use.

Purpose: This medium-priority strategy aims to advocate for integrating family planning into women's economic empowerment schemes so that financial independence and reproductive autonomy reinforce each other.

Implementation timeline, stakeholder and resource: The strategy should be implemented over 1–3 years, led by the Women and Social Affairs Bureau in collaboration with woreda offices, microfinance institutions, and community organisations. Indicative resources are medium (50,000–200,000 ETB per woreda per year), mainly for advocacy activities, coordination meetings, evidence dissemination, and linkage building.

Core actions:

- Conduct advocacy and dissemination of evidence on the link between women's economic empowerment and contraceptive use.
- Link family planning with income-generating initiatives, VSLAs, and other women's self-help platforms.
- Promote policy dialogue to incorporate FP into women's economic empowerment programmes at woreda and regional levels.

Monitoring indicator: Proportion of women participating in economic empowerment schemes who also receive FP information or services and change in MCM use among economically active women.

6.10.1.5.2 Strategy 15: Advocating for the integration of family planning (FP) services with education and literacy programmes for women and girls

Barrier addressed: Low educational attainment limits women's access to information and reduces their ability to make informed decisions about MCM use. In this study, educational status was a key predictor of modern contraceptive use, yet a large proportion of married women had not attended formal education, showing a clear need to link family planning with literacy and education efforts.

Purpose: This medium-priority strategy aims to integrate FP with education and literacy programmes so that women and girls gain both reproductive health knowledge and broader life opportunities.

Implementation timeline, stakeholder and resource: The strategy should be implemented over 1–3 years, led by the Regional Education Bureau in collaboration with woreda education offices, health offices, and adult literacy programmes. Indicative resources are medium (50,000–200,000 ETB per woreda per year), mainly for advocacy, coordination, literacy materials, and joint programme activities.

Core actions:

- Advocate for the inclusion of FP information in adult literacy and women's education programmes.
- Link family planning counselling and information sessions with literacy classes and girls' education initiatives.
- Promote policy and programme coordination between education and health sectors at woreda and regional levels.

Monitoring indicator: Proportion of women and girls in literacy or education programmes who receive FP information and change in MCM use among those with primary or higher education.

6.10.1.5.3 Strategy 16: Multi-sectoral integration and mainstreaming family planning into other development sectors' programmes

Barrier addressed: Fragmented programming across sectors limits the reach and sustainability of FP services, especially in remote and underserved areas. The study suggests that family planning outcomes are shaped not only by health services but also by education, agriculture, natural resource management, and productive safety net programmes, highlighting inter-sectoral coordination as a key gap to address.

Purpose: This low-priority strategy aims to institutionalise family planning across development sectors so that reproductive health support is embedded in broader social and economic programmes.

Implementation timeline, stakeholders, and resources: The strategy should be implemented over 3–5 years, led by the Regional Health Bureau in collaboration with relevant non-health sectors and development partners. Indicative resources are high (>200,000 ETB per woreda per year), mainly for coordination platforms, joint planning, advocacy, and programme integration activities.

Core actions:

- Advocate for formal multi-sectoral coordination mechanisms at woreda, zonal, and regional levels.
- Mainstream FP messages and referral linkages into education, livelihood, agriculture, and environment programmes.
- Mobilise joint funding and technical support for integrated FP interventions.

Monitoring indicator: Number of sectors incorporating FP into their programmes and change in MCM use and unmet need over time.

6.10.1.5.4 Strategy 17: Engage Faith-Based Organizations in family planning programming and implementation

Barrier addressed: Religious misconceptions and the lack of formal partnership with FBOs reduce community acceptance of family planning. Although religious leaders are influential in the Bale Eco-region, their engagement has largely been informal, which limits the consistency and legitimacy of family planning messaging. A nationally endorsed religious position on family planning would help reduce myths, clarify compatibility with faith teachings, and increase community trust.

Purpose: This medium-priority strategy aims to build a formal and culturally sensitive partnership with FBOs so that religious values support, rather than hinder, voluntary MCM use.

Implementation timeline, stakeholders, and resources: The strategy should be implemented over 1–3 years, led by the FBO Associations in collaboration with religious councils, health offices, and government stakeholders. Indicative resources are medium

(50,000–200,000 ETB per woreda per year), mainly for dissemination, forums, training, and partnership coordination.

Core actions:

- Disseminate the study findings through religious and community platforms to support evidence-informed dialogue.
- Advocate for integration of FP into FBO programming.
- Organise regular woreda-level religious health forums where imams, priests, and other leaders are trained to frame FP as maternal health and birth spacing.

Monitoring indicator: Number of FBOs actively engaged in FP programming and change in religiously motivated opposition to MCM use.

6.10.1.5.5 Strategy 18: Integrate FP interventions with community-based organisations (CBOs)

Barrier addressed: Weak use of locally trusted community platforms limits the reach of FP information and referral support in rural and hard-to-reach settings. The study showed that CBOs can serve as an effective entry point because they already connect with community leaders, men, religious figures, and elders who influence attitudes and practices around family planning.

Purpose: This medium-priority strategy aims to leverage CBOs as a community entry point to expand FP awareness, reduce stigma, and improve service linkage in underserved areas.

Implementation timeline, stakeholders, and resources: The strategy should be implemented over 1–3 years, led by the Woreda Health Office in collaboration with CBO leadership, community structures, and local health workers. Indicative resources are low (<50,000 ETB per woreda per year), mainly for training, community sessions, mapping, and advocacy activities.

Core actions:

- Train health workers on mapping CBOs and integrating FP into CBO platforms.
- Train CBO leadership on the value of FP integration for social, economic, and environmental well-being.
- Organise FP education and communication sessions for CBO general assembly members.
- Generate evidence and advocate for policy support on FP integration with CBOs in rural and hard-to-reach communities.

Monitoring indicator: Number of CBOs integrating FP activities and proportion of members reached with FP information and referrals.

6.10.2 Strategies validation

As the culmination of this multi-phase, explanatory sequential mixed-methods study, Phase 3 developed and validated 18 multi-level strategies to enhance use of modern contraceptive methods (MCM) among married women in the Bale Eco-region. The strategies were grounded in integrated findings from Phases I and II and addressed identified barriers, including administrative and infrastructural constraints, limited knowledge and couple communication, and service readiness gaps. They align with the existing health system across the Oromia Regional Health Bureau, Bale and West Arsi Zone Health Departments, 16 woreda health offices, primary health care units (PHCUs), and development partners.

Validation employed a two-pronged participatory approach. First, an expert review was conducted by six professionals with direct experience in family planning programmes: one from the Oromia Regional Health Bureau, three from the Bale Zone Health Department, and two from the West Arsi Zone Health Department. Reviewers assessed policy alignment, operational feasibility at zonal and woreda levels, and responsiveness to local community norms. Their feedback informed refinements including clearer operational definitions, stronger linkage to service delivery workflows, and enhanced integration with economic empowerment and education initiatives. Second, draft strategies were presented at a validation workshop organised by the Bale Zone Health Office, which involved health professionals from 12 woredas, including health extension

workers at the kebele level and PHCU directors. Participants evaluated practicality and offered concrete suggestions on implementation logistics, resource requirements, and community acceptability.

Feedback from both sources was systematically integrated into the final revision. Key refinements strengthened operational clarity of institutional strategies (e.g., service delivery unit arrangements within facilities), enhanced multi-sectoral language in policy strategies (e.g., explicit integration with literacy and economic empowerment schemes), and reinforced community-level strategies through greater involvement of religious and FBOs. The participatory process fostered stakeholder ownership, increasing commitment to implementation. The final strategies document is included in this PhD thesis submitted to UNISA and will be disseminated to all relevant stakeholders to facilitate translation into action.

The 18 validated strategies span five levels of influence. Intrapersonal strategies (1–3) target knowledge improvement, women's education, and income generation. Interpersonal strategies (4–6) emphasise couple communication, male involvement, and peer group discussions. Community strategies (7–10) focus on social mobilisation, behavioural change communication, community engagement, and the involvement of religious leaders. Institutional strategies (11–13) address access expansion to remote areas, service delivery functionality, and provider competence. Policy strategies (14–18) advocate for integration with economic empowerment and education programmes, multi-sectoral mainstreaming, engagement with faith-based organisations, and linkage with community-based organisations. This multi-level architecture addresses both individual determinants and systemic barriers.

The validation confirms the strategies are practical, contextually relevant, and aligned with health system structures in the Bale Eco-region. Grounding strategies in empirical mixed-methods evidence and securing stakeholder endorsement through expert review and workshop validation establishes a credible implementation foundation. Future work will include follow-up engagement with key stakeholders through interviews and surveys to monitor progress, need for improvement, and evaluate impact. This ongoing engagement, coupled with collaboration with local community leaders and health workers, is expected to sustain interventions and generate long-lasting improvements in MCM use among married women in the region.

6.10.3 Feasibility analysis of proposed strategies

The eighteen strategies developed across the socio-ecological levels were evaluated against feasibility criteria, including human and financial resources, infrastructure constraints, and the political-administrative context of the Bale Eco-region. While multi-level and ambitious in scope, the strategies vary in their resource intensity and implementation challenges.

Overall, strategies at the intrapersonal, interpersonal, and community levels are relatively low cost and feasible within short timeframes, relying primarily on existing health extension programmes and community structures. In contrast, institutional- and policy-level strategies are more resource-intensive, requiring structural changes, financial investments, and multi-sectoral collaboration. While aspirational, these higher-level strategies are critical for long-term sustainability and systemic impact.

By acknowledging feasibility constraints and resource implications, the strategies are positioned as: (1) High feasibility, low-resource strategies: Intrapersonal (knowledge, couple communication), interpersonal (peer groups), and community mobilisation. These can be implemented quickly with existing structures; (2) Moderate feasibility, resource-intensive strategies: Institutional and policy-level interventions (facility upgrades, integration with education/economic programmes). These require financial investment, political commitment, and longer timeframes. Taking infrastructure constraints in remote areas and limited budgets as the major challenges for the realisation of these strategies.

Table 6.8 below presents the feasibility analysis of the proposed strategies for enhancing MCM use among married women in the Bale Eco-region.

Table 6.8 Feasibility analysis of the proposed strategies for enhancing MCM use by married women in BER

Level	Strategy (S1–S18)	Feasibility	Resource Needs	Implementation Challenges
Intrapersonal	S1. Improve knowledge and understanding about MCM	**High:** achievable via health extension programme	IEC materials, training sessions	Limited literacy among women in remote areas
	S2. Promote married women and girls' education	**Moderate:** requires long-term investment	Schools, literacy programmes, teachers	Structural barriers, cultural norms, budget constraints
	S3. Promote income generation and employment for women	**Moderate:** feasible with NGO/partner support	Financial resources, microfinance, vocational	Limited local markets, gender norms restricting employment
Interpersonal	S4. Promote couple communication	**High:** low-cost, feasible via counselling	Counselling tools, trained facilitators	Cultural reluctance to discuss FP openly
	S5. Promote men's involvement	**Moderate:** targeted outreach	Campaigns, role models	Resistance, gender norms
	S6. Peer group discussions	**High:** existing groups	Meeting spaces, facilitators	Sustaining participation over time
Community	S7. Social mobilisation and community dialogues	**High:** feasible with modest resources	Facilitators, transport, small funds for meetings	Coordination across diverse communities
	S8. Social and behavioural change communication	**Moderate:** resource-intensive	Media campaigns, IEC materials, trained staff	Limited media reach in remote areas
	S9. Community group engagement and participation	**High**: feasible via cooperatives	Facilitation, monitoring tools	Ensuring inclusivity and sustained engagement
	10. Involve religious leaders	**Moderate:** feasible/sensitive	Dialogue forums, orientations	Divergent views, politicalised
Institutional	S11. Expand access to MCM in remote areas	**Moderate:** resource-intensive	Logistics, mobile outreach, supply chain strengthening	Poor infrastructure, transport limitations
	S12. Improve FP service delivery unit arrangement	**Moderate:** requires investment	Facility upgrades, staffing, equipment	Budget constraints, competing health priorities
	S13. Provider's competence	**High**: feasible via training	Training, supervision, refresher	Staff turnover, workload pressures
Policy	S14. Integrate FP with women's economic empowerment	**Moderate**: feasible with multi-sectoral collaboration	Programme design, monitoring frameworks	Requires political will, inter-sectoral coordination
	S15. Integrate FP with education/literacy programmes	**Moderate:** resource-intensive	Alignment with education sector, literacy initiatives	Slow implementation, structural constraints
	S16. Mainstream FP into other development programmes	**Moderate**: administratively complex	Coordination mechanisms, policy frameworks	Bureaucratic delays, competing priorities
	S17. Engage faith-based organisations	**Moderate**: feasible with dialogue	Orientation sessions, partnership agreements	Political sensitivity, varying faith positions
	S18. Integrate FP with CBOs	**High**: existing CBOs	Coordination, monitoring	Limited capacity of some CBOs

6.10.4 Monitoring and evaluation

When implementing strategies to improve the use of modern contraceptive methods (MCM), reliable monitoring and evaluation (M&E) mechanisms are essential for assessing effectiveness and guiding adjustments. Without proper M&E, it is impossible to determine whether strategies work as intended or require modification. Establishing clear goals, metrics, baselines, targets, reporting intervals, responsible actors, and verification sources is crucial to success.

Regularly tracking key performance indicators against set targets provides insights into the effectiveness of the strategy. Soliciting stakeholder feedback ensures alignment with organisational goals. Continuously monitoring and evaluating enables organisations to adapt to changing circumstances and optimise the MCM improvement plan for maximum impact. To track progress in MCM use and reductions in unintended pregnancies and unmet need, leading indicators must be monitored. These indicators measure progress and identify areas requiring attention. However, relying solely on metrics may overlook qualitative impacts. A comprehensive evaluation process must consider both quantitative and qualitative data, including stakeholder feedback, to gain a holistic understanding of effectiveness and support continuous improvement.

Illustrative indicators adopted from (Speizer et al 2022:2; Jain, Aruldas, Tobey, Mozumdar & Acharya 2019:289) are presented in Table 6.9 below, which specifies monitoring responsibilities, reporting intervals, and verification sources.

Table 6.9 Illustrative list of indicators, baseline values, targets, and data sources

S. No	Indicator	Definition	Baseline (This Study)	1-Year Target	3-Year Target	Data Source
1	Method Information Index (MII)	% of women informed about other methods, side effects, and side-effect management (yes to all 3 questions)	51%	60%	75%	Client exit interview/ household survey
2	FP information provided at last contact	% of women provided FP information at last health service contact (clinic or community)	55.8%	65%	80%	Household survey
3	Autonomous/ joint decision-making	% of current FP users who decided to use alone or jointly with partner	58%	65%	75%	Client exit interview/ household survey
4	Modern contraceptive prevalence rate (mCPR)	% of reproductive-age women using (or partner using) a modern contraceptive method	36.4%	42%	52%	Household survey
5	Unmet need for modern contraception	% of fecund women wanting to delay/avoid childbearing not using modern method (includes traditional method users)	34.6%	28%	18%	Household survey
6	Demand satisfied with modern method	% of women who desire no additional children or to postpone next child and are using a modern method	47.9%	55%	68%	Household survey
7	mCPR by education level (equity)	% of modern method users among women with no education vs. secondary+ education	28% (no edu); 52% (secondary+)	35%; 60%	45%; 70%	Household survey (subgroup analysis)
8	12-month continuation rate (quality)	% of women who initiated MCM and continued at 12 months	54%	62%	72%	Facility follow-up records/ survey
9	Service access equity index	% of women within 5 km of facility using MCM vs. those >5 km away	44% (≤5 km); 26% (>5 km)	52%; 35%	62%; 48%	Household survey + geographic mapping

Table 6.10 specifies responsible actors at each health system level, reporting intervals, and verification sources for each indicator to ensure systematic tracking, accountability, and MCM improvement strategies.

Table 6.10 Monitoring indicators, responsible actors, reporting intervals, and verification sources

Indicator #	Responsible Actor	Reporting Interval	Verification Source
1–3 (Quality indicators)	PHCU Directors; Health Centre FP Supervisors	Quarterly	Client exit interviews; facility records
4–6 (Utilisation indicators)	Woreda Health Office; Zonal Health Department	Bi-annually	Household surveys; DHIS2 data
7–9 (Equity/quality indicators)	Oromia Regional Health Bureau; M&E Unit	Annually	Subgroup survey analysis; facility follow-up records
All indicators	Health Extension Workers (Kebele level)	Quarterly (reporting)	PHCU quarterly reports; DHIS2

6.11 SUMMARY

Chapter 6 presents the development of strategies to enhance modern contraceptive use in the Bale Eco-region. It begins by introducing the proposed strategies and explaining how they are grounded in the study's theoretical frameworks, particularly the socio-ecological model and mixed-methods orientation. The chapter then outlines the stepwise strategy development process, indicating how the major integrated findings from the quantitative and qualitative phases informed the content and focus of each strategy. On this basis, the chapter clarifies the purpose of the strategies and sets out the vision, mission, overall goal and specific objectives that guide their design and implementation. It further describes the underlying principles of the strategies. The core of the chapter presents the set of proposed multi-level strategies for enhancing modern contraceptive methods in the Bale Eco-region, followed by a concise discussion of how these strategies are intended to be implemented, the feasibility analysis, strategies validation process and the monitoring and evaluation arrangements required to track progress and ensure learning over time.

CHAPTER 7

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

The previous chapter presented the theoretical and empirical foundations underpinning the development of strategies to enhance modern contraceptive method (MCM) use among married women in the Bale Eco-region. Building on these insights, this final chapter summarises the key conclusions derived from the study, presents evidence-based recommendations, reflects on the study limitations, and highlights the researcher's personal reflections.

The primary aim of this study was to develop context-specific strategies to improve the use of modern contraceptive methods among married women in the Bale Eco-region, Ethiopia. To address this aim, the study followed six specific objectives:

- **Objective 1:** To determine the prevalence of modern contraceptive method use amongst married women in the Bale Eco-region, Ethiopia.
- **Objective 2:** To determine the prevalence of unmet needs for modern contraceptive methods amongst married women in the Bale Eco-region, Ethiopia.
- **Objective 3:** To identify factors associated with unmet needs for modern contraceptive methods.
- **Objective 4:** To describe the barriers to modern contraceptive method use amongst married women.
- **Objective 5:** To explain the enablers that promote the use of modern contraceptives.
- **Objective 6:** To develop strategies to enhance modern contraceptive methods use among married women in the Bale Eco-region, Ethiopia.

Corresponding to these objectives, the study answered the following six research questions:

- What is the magnitude of modern contraceptive methods use amongst married women aged 18-49 years in the Bale Eco-region?

- What proportion of married women in this age group experience unmet needs for modern contraceptive methods?
- What factors are associated with unmet needs for modern contraceptive methods in this population?
- What are the key barriers to modern contraceptive use among married women in the Bale Eco-region, Ethiopia?
- Which enablers promote modern contraceptive methods use amongst married women?
- What strategies can effectively address the multi-level determinants of modern contraceptive use and improve uptake among married women aged 18-49 years in the Bale Eco-region?

7.2 RESEARCH DESIGN AND METHODS

This study used a multi-phase mixed-methods design, employing an explanatory sequential design in Phases I and II, with Phase III devoted to strategy development. This study design enabled a comprehensive understanding of modern contraceptive method use and the reasons for non-use among married women in the Bale Eco-region. The quantitative phase generated robust evidence on the prevalence of MCM use, the magnitude of unmet need, and the multi-level factors associated with these outcomes. Building on these results, the qualitative phase provided deeper contextual explanations by capturing lived experiences, social dynamics, and service-level realities from married women and health extension workers.

The integration of both phases, guided by the socio-ecological framework, enabled a comprehensive understanding of the barriers and enablers influencing modern contraceptive use at intrapersonal, interpersonal, community, institutional, and policy levels. This integrated evidence base strengthened the development of the multi-level strategies during the strategy development steps (Phase III) presented in Chapter 6.

Overall, the chosen methodological approach ensured that the study's findings are both empirically rigorous and contextually grounded, thereby providing a solid foundation for the conclusion and recommendations that follow. The next section presents the main conclusions derived for each research objective.

7.3 MAIN CONCLUSIONS

Overall, the study shows that modern contraceptive use among married women in the Bale Eco-region is still constrained by a combination of individual, relational, community, institutional, and societal factors, while unmet need remains high and uneven across locations. The findings indicate that demand for modern contraception is present, but it is not fully translated into effective use because of gaps in knowledge, counselling, partner support, social acceptance, service quality, and method choice. At the same time, the study identified important enablers, including women's education and empowerment, supportive communication, accessible and respectful services, and positive community and religious influence. Based on these findings, the study developed multi-level strategies that are context-specific and grounded in the socio-ecological model, offering a practical framework for improving informed choice, reducing unmet need, and strengthening sustained use of modern contraception in the Bale Eco-region.

The key findings are presented in these conclusions, which also serve as the basis for the subsequent objective-specific conclusions. The general conclusions of the study are presented below:

- **Achievement of all the research objectives:** The use of a multi-phase mixed-methods study that employed an explanatory sequential design in Phases I and II, extending to a strategy development phase (Phase III), enabled the researcher to systematically address all six research objectives. Objectives 1–3 were accomplished through quantitative analysis, which identified the prevalence of MCM use, the magnitude of unmet needs, and the determinants associated with unmet needs for MCM. Objectives 4–5 were achieved through the qualitative phase, which provided an in-depth explanation of the barriers and facilitators identified across the socio-ecological levels. Objective 6, on the development of strategies, was realised through integrating insights from both phases to generate context-specific, evidence-based interventions.
- **Value added by the mixed-methods approach:** The mixed-methods research approach strengthened the validity and depth of the conclusions. The quantitative results provided evidence on the extent of the issue and the significant drivers of unmet demand and MCM usage, while the qualitative results illuminated the lived experiences, cultural norms, and contextual factors influencing these interactions.

This complementarity allowed for richer interpretation than either method could have achieved independently.

- **Importance of multi-level analysis:** The use of multi-level analysis enabled the study to confirm that determinants of unmet needs for MCM and the barriers and facilitators to MCM use operate across multiple socio-ecological levels. Multi-level mixed-effects logistic regression of quantitative data identified individual- and community-level factors that were statistically significantly associated with the outcome variables. While the qualitative analysis revealed additional intrapersonal, interpersonal, community, institutional, and policy dynamics. This comprehensive view underscores the need for interventions that address barriers at multiple layers simultaneously, rather than focusing only on individual-level changes.
- **Contribution of diverse participant perspectives:** Involvement of both the service users (married women) and the service providers (health extension workers) enriched the conclusions. Their perspectives revealed not only the personal and social barriers affecting women's decisions, but also system-level challenges related to service delivery, counselling quality, providers' competency, and resource limitations. These insights were critical in shaping actionable and realistic strategies.
- **Central role of the socio-ecological framework in this study:** The use of the socio-ecological model throughout this study enabled its conclusions to capture the complex interactions among intrapersonal, interpersonal, community, institutional, and policy-level aspects. The SEM proved instrumental in guiding the development of multi-level strategies that address the interconnected barriers women face by the time they want to use modern contraceptive methods.
- **Integrated evidence for strategy development:** The use of a multi-phase mixed-methods study with an explanatory sequential design in Phases I and II, extending to iterative reflections throughout the research process in the strategy development phase. Quantitative findings highlighted key determinants, which were further explored and contextualised qualitatively. This integration produced a context-specific evidence base that informed the development of the multi-level strategies outlined in Chapter 6. These strategies are not only grounded in empirical data but also tailored to the social, cultural, and institutional realities of the Bale Eco-region.

Together, these general conclusions demonstrate how the mixed-method approach and the socio-ecological framework worked systematically to generate a comprehensive understanding of the use of modern contraceptive methods in the study area.

The following section presents objective-by-objective summaries of the main findings and their corresponding conclusions, building on this integrated foundation.

7.3.1 Objective 1: To determine the prevalence of modern contraceptive use amongst married women aged 18-49 years in the Bale Eco-region, Ethiopia

Summary of key findings related to Objective 1: The study showed that modern contraceptive use among married women in the Bale Eco-region remains modest at 36.4% (95% Confidence Interval: 33.4%, 39.5%). Among current users, 30.4% used modern contraceptive methods for spacing pregnancy, while 5.9% used them for limiting childbirth. The method mix was highly skewed towards injectable methods, with very limited use of long-acting reversible methods and no uptake of permanent methods. MCM use in the lowland stratum is half lower (20.9%) compared to the highland stratum (41.5%). Although more than two-thirds of women expressed demand for modern contraceptive methods, only about half of this demand was met.

Conclusion related to Objective 1: The findings show that demand for pregnancy prevention in the Bale Eco-region is not being fully translated into effective modern contraceptive use. The low overall use, narrow method mix, and incomplete counselling and communication support suggest important gaps in informed choice, method availability, and interpersonal support. Improving modern contraceptive use in this setting therefore requires stronger counselling, broader access to a full range of methods, and better couple and peer communication to support sustained and informed decision-making.

7.3.2 Objective 2: To determine the magnitude of unmet needs for modern contraceptive methods amongst married women of age 18-49 years in Bale Eco-region, Ethiopia

Summary of key findings related to Objective 2: Unmet need for modern contraception among married women in the Bale Eco-region was high at 34.6%: 28.3% for spacing and 6.3% for limiting. The burden varied by agro-ecological stratum, with the highest prevalence in the lowland stratum (44.2%), followed by the midland (35.5%) and highland (30.7%) strata. Nearly three in 10 recent births were unintended, and the main reported

reasons for non-use were religious prohibition, fear of side effects, women's opposition, and husband opposition.

Conclusion related to Objective 2: The findings show a substantial gap between fertility intentions and contraceptive behaviour in the Bale Eco-region, with unmet need remaining particularly high in lowland areas. The pattern suggests that the problem is shaped not only by access constraints, but also by religious, relational and method-related concerns that continue to limit contraceptive use. Addressing unmet need in this setting, therefore, requires targeted, context-specific interventions that combine improved service outreach with strategies that address social and household-level barriers.

7.3.3 Objective 3: To identify the factors associated with unmet needs for modern contraceptives amongst married women of age 18-49 years in Bale Eco-region Ethiopia

Summary of key findings related to Objective 3: The study identified protective factors against unmet need for modern contraception across the socio-ecological levels. At the intrapersonal level, secondary or higher education and employment reduced unmet need, showing the importance of education and economic empowerment. At the interpersonal level, partner support, peer discussion, and membership in community-based organisations were associated with lower unmet need. Institutionally, home visits by health extension workers and receipt of family planning education reduced the risk substantially, while at the community-level, living in clusters with more modern contraceptive users was protective. In contrast, living in clusters with a higher proportion of employed women increased unmet need, suggesting that service delivery is not fully matching the needs of economically active women.

Conclusions related to Objective 3: Unmet need for modern contraception is shaped by factors operating across all socio-ecological levels, rather than by a single determinant. The findings imply that reducing unmet need requires integrated interventions that promote women's education and economic participation, strengthen couple and peer communication, and improve outreach through health extension workers. They also suggest that family planning services should be made more responsive to the needs of working women, while community-level behaviour change efforts should be intensified to convert latent demand into actual modern contraceptive use.

7.3.4 Objective 4: To describe the barriers to modern contraceptive method use amongst married women of age 18-49 years in Bale Eco-region, Ethiopia

Summary of key findings related to Objective 4: The study shows that barriers to modern contraceptive use operate across the socio-ecological levels. Low knowledge, misconceptions, fear of side effects, low self-esteem and weak decision-making power limited women's ability to act on their fertility intentions. At the interpersonal level, husband opposition and pressure from relatives and peers discouraged use, while community rumours and moralising narratives reinforced stigma and non-use. Institutional barriers such as poor counselling, provider shortcomings, lack of privacy, distance, stock-outs and a narrow method mix further reduced informed choice and sustained non-use. At the societal level, gendered power norms and religious misinterpretations continued to constrain women's autonomy.

Conclusions related to Objective 4: These findings imply that improving modern contraceptive use in the Bale Eco-region requires more than expanding services or increasing awareness. Effective action must combine women's empowerment, male and family engagement, norm change with religious and community leaders, and stronger service quality to address both social and health-system barriers. They also suggest that family planning interventions should be linked to broader gender equity efforts if gains in contraceptive use are to be meaningful and sustained.

7.3.5 Objective 5: To explain the enablers that promote modern contraceptive methods use among married women in Bale Eco-region, Ethiopia

Summary of key findings related to Objective 5: Enablers of modern contraceptive method use operated across all levels of the socio-ecological model. Women's understanding of how methods work and of possible side effects, together with self-determination, increased confidence to initiate and sustain use. Supportive husbands and peers reduced fear of conflict and helped normalise contraception, while visible use by other women and encouragement from community and religious leaders strengthened acceptance. Institutional enablers included quality counselling, a broader range of methods, skilled providers, and discreet outreach, such as home visits. At the societal and policy level, women's self-help groups and multi-sectoral programmes linked to literacy, employment, and economic opportunities further supported contraceptive use.

Conclusion related to Objective 5: Modern contraceptive use is more likely when women are informed, empowered, and supported by their social environment and health services. The findings imply that sustained use depends not only on access to methods but also on changes in norms, partner and community support, and reliable, respectful service delivery. They also suggest that linking family planning with broader empowerment and economic initiatives can strengthen women's autonomy and improve contraceptive uptake.

7.3.6 Objective 6: To develop strategies for the use of modern contraceptive methods among married women in the Bale Eco-region, Ethiopia

Summary of key findings related to Objective 6: The final objective translated the mixed-methods findings into a multi-level strategy package grounded in the socio-ecological model. The proposed strategies were organised into four pillars that address intrapersonal barriers, interpersonal dynamics, community norms and access, and institutional and policy systems. Together, the pillars show that improving modern contraceptive use in the Bale Eco-region requires coordinated action on knowledge, autonomy, communication, norm change, service quality, and multi-sectoral integration.

Conclusions related to Objective 6: The mixed-methods findings were successfully synthesised into a coherent, context-specific set of strategies to improve modern contraceptive use among married women in the Bale Eco-region. The strategy package reflects the main barriers and enablers identified in the study and provides a practical framework for programming that strengthens women's decision-making, partner and community support, health service responsiveness, and broader enabling systems.

7.4 STUDY LIMITATIONS

A limitation is a factor that restricts the scope, depth, or generalisability of a study and may influence how the findings are interpreted. The researcher outlined the study's limitations for consideration during the interpretation of the findings as factors that may have influenced the scope, validity, and transferability of the results:

- First, the study focused exclusively on married women living in the Bale Eco-region, excluding unmarried but sexually active women and married men. The absence of these groups limits the generalisability of the findings to all women of reproductive age and omits important perspectives from male partners and other key influencers who play a role in contraceptive decision-making. As a result, the findings should be interpreted as reflecting the experiences of married women in the study area rather than the broader reproductive-age population.
- Second, the key informant interviews (KIIs) during Phase 2 involved only health extension workers based at health posts. The perspectives of other healthcare providers at health centre and hospital levels who offer a broader range of contraceptive methods were not captured and could have enriched the qualitative insights. This may have limited the depth of the service-delivery perspective and the underrepresentation of challenges related to referral systems, method availability, and provider decision-making at higher levels of care.
- Third, the explanatory sequential mixed-methods design required extended time for data collection, analysis, and integration. The need to complete the quantitative phase before commencing qualitative data collection extended the overall study period and posed logistical challenges. This prolonged process may have affected the timeliness of the findings and constrained the extent to which some contextual changes occurring during the study period were fully captured.
- Fourth, the interpretation of mixed-methods findings is inherently subject to researcher bias (Lorenzini, Osorio-Galeano, Schmidt & Cañon-Montañez 2024:14). To minimise this, the study employed a structured side-by-side joint display integration technique and triangulation by cross-validating findings across the quantitative and qualitative data sources. Nevertheless, complete elimination of interpretive bias is not possible, and some subjective judgement may still have influenced how findings were synthesised.
- Fifth, the study relied partly on self-reported information on contraceptive knowledge, attitudes, and use. Since modern contraceptive use can be a sensitive topic, some participants may have underreported or overreported their behaviour due to recall error or social desirability bias, particularly in relation to covert use or non-use. This may have led to some misclassification and could have influenced the estimated prevalence and interpretation of the barriers and facilitators.

- Lastly, the qualitative component did not include policymakers, community leaders, or other influential actors whose insights might have provided additional contextual understanding relevant to strategy development for improving modern contraceptive use. Their absence may have limited the study's ability to fully capture policy and community-level perspectives that shape implementation feasibility and sustainability.

7.5 RECOMMENDATIONS

Recommendations are the actions proposed on the basis of the study findings to guide policy, practice, and future intervention strategies (Sheppard 2020:355). Based on the mixed-methods findings, the conclusions presented in Chapter 7, and the multi-level strategies developed in Chapter 6, the following recommendations are proposed to improve the use of modern contraceptive methods among married women in the Bale Eco-region.

This study found that modern contraceptive use is constrained by interconnected intrapersonal, interpersonal, community, institutional, and policy-related factors, while unmet need remains high and uneven across the agro-ecological settings within the Bale Eco-region. Although the desire to use modern contraception exists, it is not fully translated into sustained use because of gaps in knowledge, counselling, partner support, service quality, method availability, and social acceptance. At the same time, the findings showed that women's education and economic participation, empowerment, supportive communication, accessible and respectful services, and positive community and religious influence can facilitate use.

Accordingly, improving modern contraceptive use in the Bale Eco-region requires coordinated and multi-sectoral intervention that operates across different levels of the socio-ecological model. In line with this, the recommendations made by this study are organised into three major interrelated recommendation layers: (1) policy system and multi-sectoral integration, (2) service delivery and health system strengthening, and (3) community norm change and social support. Each recommendation draws on empirical findings and is explicitly linked to the relevant strategies (S1 to S18) described in Chapter 6 to ensure traceability from evidence to action.

7.5.1 Recommendation relating to the Ethiopian Minister of Health at the federal level and the Oromia Regional Health Bureau

Recommendation layer: Policy system and multi-sectoral integration
Recommendation linked strategies: S2, S3, S11, S12, S13, S14, S15, S16
The Federal Ministry of Health and the Oromia Regional Health Bureau are advised to:

- Tailor strategies to sub-regional contexts. Conduct periodic gap analyses of MCM use and unmet need. Identify lagging woredas/ kebeles. Prioritise responses for remote, hard-to-reach areas.
- Institutionalise multi-sector coordination. Embed Family Planning in education, women's affairs, cooperatives, and job programmes. Define clear roles and review cycles.
- Assure method availability in remote areas. Support outreach/mobile services. Ensure supply of injectable methods, implants, IUDs, OCPs, condoms, and emergency contraception at health posts/centres.
- Upgrade infrastructure and privacy. Improve counselling rooms. Renovate for privacy, infection prevention, and disability access.
- Strengthen provider competence. Scale training and mentorship. Promote respectful, client-centred care. Address myths, rumours, and fears about side effects.

7.5.2 Recommendation relating to Zonal and Woreda level Health Departments

Recommendation layer: Service delivery and health system strengthening
Recommendation linked strategies: S11, S12, S13, S16
Zonal and Woreda Health Departments are recommended to implement the following actions within their annual family planning plans and quarterly review cycles:

- Translate regional guidance into woreda micro plans addressing intrapersonal, interpersonal, community and institutional barriers identified in local data.
- Expand outreach and home visits. Intensify HEW home visits and periodic integrated outreach (including provision of methods and referrals).
- Engage men systematically. Run male-focused sessions via agriculture/cooperative forums; recruit male champions to normalise supportive spousal behaviours.

- Activate local volunteer networks. Train and coach Village Health Leaders to mobilise households and accompany referrals.

7.5.3 Recommendation relating to the Ministry of Education at regional, zonal, and woreda level

Recommendation layer: Policy system and multi-sectoral integration
Recommendation linked strategies: S2, S15
The Ministry of Education and its structures at regional, zonal, and woreda levels are recommended to:

- Enforce and strengthen measures that keep girls in school and reduce school dropout, and actively discourage early marriage, especially in pastoralist and remote areas, as women's education was found to be strongly protective against unmet need.
- Implement functional adult literacy classes that integrate family planning and modern contraceptive methods content, including rights-based decision-making and informed choice, for married women and out-of-school girls.
- Promote school health collaboration by coordinating school health programmes and periodic reproductive health education, led by trained teachers and health extension workers, to improve knowledge and attitudes among adolescents and young married women.

7.5.4 Recommendation relating to cooperative promotion and job creation offices at regional, zonal, and woreda level

Recommendation layer: Policy system and multi-sectoral integration
Recommendation linked strategies: S3, S6, S9, S14
Cooperative promotion and job creation offices are advised to:

- Support women's Village Savings and Loan Associations (VSLAs), cooperatives, and microenterprise groups, and integrate family planning education and referral into routine meetings, thereby linking economic empowerment with reproductive autonomy.

- Encourage groups to establish peer support mechanisms for discussing side-effect management, method continuation, and access to services, recognising the role of peer influence in promoting sustained use.
- Facilitate women's participation in income-generating activities and leadership positions within cooperatives as a means of strengthening their bargaining power and decision-making capacity in reproductive matters.

7.5.5 Recommendation relating to women and children's affairs offices at regional, zonal, and woreda level

Recommendation layer: Policy system and multi-sectoral integration
Recommendation linked strategies: S3, S9, S14, S16, S18
Women and children's affairs offices at all administrative levels should:

- Advance women's agency by integrating decision-making and negotiation skills modules into empowerment programmes, and by promoting joint financial planning and resource control to reduce economic dependence that limits contraceptive choice.
- Prevent and respond to gender-based violence by leading community campaigns against intimate partner violence, strengthening referral pathways between health facilities, police, legal services, and social support structures, and ensuring that survivors receive appropriate care.
- Address harmful practices by working closely with elders and religious leaders to discourage early marriage and promote healthy timing and spacing of pregnancies, in line with the evidence linking such practices to constrained contraceptive use.
- Support women's self-help groups and community-based associations as spaces where women can access information, share experiences, and build collective voice on reproductive health issues.

7.5.6 Recommendation relating to CSOs and private sector

Recommendation layer: Policy system and multi-sectoral integration
Recommendation linked strategies: S7, S8, S9, S12, S16, S17, S18
Civil Society Organizations (CSOs) and private actors should:

- Collaborate with regional health authorities, international organisations, and community leaders to promote capacity building with an emphasis on high-quality MCM counselling and service delivery, strengthening commodities supply and service delivery in accordance with national policies and initiatives.
- Pilot test and advocate for context-specific programmes that could successfully bring changes through addressing the multi-level barriers such as myths, partner opposition, and service access constraints hindering MCM in rural and hard-to-reach areas and rigorously document and share lessons to inform scale-up.
- Engage faith-based and community-based organisations in joint initiatives that promote positive social norms and informed choice, aligned with national policies and local priorities.
- Mobilise additional resources for outreach, demand creation, and community education, focusing on underserved populations where unmet need remains high.

7.5.7 Recommendation relating to health extension workers, health professionals and service providers

Recommendation layer: Service delivery and health system strengthening
Recommendation linked strategies: S1, S7, S8, S9, S11, S12, S13, S18

Health extension workers, health professionals, and service providers are central to translating demand into sustained modern contraceptive use and should:

- Conduct regular house-to-house visits that deliver tailored counselling on the benefits of modern methods, method options, side effects and their management, method switching, and return to fertility, rather than providing only general information.
- Adhere to national family planning guidelines, protect privacy and confidentiality, and practice non-judgmental counselling, including for women who use contraception covertly or face partner opposition.
- Establish and maintain defaulter tracing and follow-up systems for women who discontinue, report side effects, or miss appointments, with clear referral pathways to higher-level facilities for long-acting methods and complications.
- Participate in ongoing training, mentorship, and supportive supervision, particularly on long-acting reversible contraceptive provision, side-effect counselling, infection

prevention, and quality assurance, thereby addressing the gap noted in provider competence.

- Collaborate with locally established community-based and FBOs by organising dialogue forums and joint community sessions that address misconceptions, reinforce accurate information, and promote favourable contraceptive social norms.

7.5.8 Recommendation relating to community-based organisations and community leaders

Recommendation layer: Community norm change and social support
Recommendation linked strategies: S4, S5, S6, S7, S8, S9, S11, S18

Community-Based Organizations (CBOs), including participatory forest management (PFM) cooperatives, participatory rangeland management (PRM) cooperatives, and other local associations, together with community leaders, can play a critical role in shifting norms and supporting women's decisions. They should:

- Integrate family planning communication and education into their regular meetings and activities, providing information on MCM, addressing myths, and reinforcing the health and socio-economic benefits of healthy timing and spacing of pregnancies.
- Arrange dialogue forums among men and husbands who are members of CBOs so that they understand the importance of modern contraceptive methods and are more likely to support their partners' informed choices.
- Facilitate the provision of family planning education and training to their general assembly members, in collaboration with health extension workers and other service providers, and encourage members to seek services when needed.
- Identify and support local champions, including respected elders and influential community figures, who can lead by example in promoting supportive attitudes and behaviours towards modern contraceptive use.

7.5.9 Recommendation relating to faith-based organisations and religious leaders

Recommendation layer: Community norm change and social support
Recommendation linked strategies: S7, S10, S17

FBOs and religious leaders have significant influence on norms and beliefs related to family planning. They should:

- Avoid prohibiting modern contraceptive methods without clear religious justification and instead collaborate with health and other development sectors that strive to improve the well-being of their followers, including maternal and child health.
- Consider the development and launching of a clear national-level “Fatwa or Principle” of MCM use by the respective religion’s followers so that the religious misconceptions and misinformation related to MCM use could be clarified and not misinterpreted.
- Collaborate and organise religious leaders’ forums where religious leaders and elders at different levels openly discuss what, why, and how MCM are used and get appropriate information through dispelling any misconceptions, misinformation and myths that hinder the use of modern contraceptive methods.
- Become active members of local community engagement platforms, such as village health leader networks, and participate in social mobilisation efforts that promote informed, voluntary use of modern contraceptive methods in their communities.

7.6 AREAS FOR FURTHER RESEARCH

Future research should examine the long-term effects of the proposed strategies on social, economic, and environmental sustainability in the Bale Eco-region, as well as on modern contraceptive use and related maternal and child health outcomes. Longitudinal studies, ideally combining quantitative and qualitative approaches, could help clarify the extent to which multi-level strategies contribute to sustained improvements in MCM uptake and continuation, and how these changes translate into broader well-being for women, families, and communities. Such research would also allow more precise attribution of effects to specific intervention components, inform refinement of the strategy package, and guide future policy and programme development in similar settings.

7.7 PERSONAL REFLECTION

Undertaking this multi-phase mixed-methods study in the Bale Eco-region has fundamentally reshaped my understanding of reproductive health research and intervention design. Working with the SEM, multi-level quantitative analysis, and in-depth

qualitative inquiry has taught me to see barriers and enablers not as isolated findings, but as interconnected phenomena that require theoretically grounded, empirically derived, and context-sensitive strategies.

Designing and implementing a large-scale multi-phase mixed-methods study required sustained engagement with communities, health systems, and local authorities, as well as careful navigation of logistical and ethical challenges in a low-resource setting. In the process, I formulated and refined eighteen context-specific strategies across four pillars: individual empowerment, interpersonal support, community norms and access, and institutional and policy systems aimed at enhancing modern contraceptive method use in BER and comparable low-resource contexts.

Analytically, the experience of conducting multi-level modelling, aggregating individual-level data into cluster-level constructs and working with code and meaning saturation in the qualitative phase sharpened my appreciation for rigorous operationalisation and integration of quantitative and qualitative evidence. The five-step strategy derivation process: barrier encoding, barrier contextualisation, enabler leveraging, strategy formulation, and strategy prioritisation and operationalisation appeared as a conceptual bridge between empirical findings and strategy design that I now recognise as a key methodological contribution of the study.

Looking ahead, I intend to build on this thesis in several ways. In practice, I plan to further develop and test the multi-level strategies and implementation plan with local stakeholders, and to disseminate findings on reproductive health and family planning in low-resource settings. Methodologically, I hope to contribute to the literature on the development of multi-phase mixed-methods strategies in public health, using the five-step derivation pathway and socio-ecological grounding as exemplars. Personally, and professionally, I aim to carry forward the lessons of this thesis, especially the importance of conceptual clarity, methodological rigour, and genuine responsiveness to scholarly critique, into future research, policy engagement, and practice in Ethiopia and beyond.

7.8 CONCLUSION

This chapter brought together the overall aim, objectives, and the multi-phase mixed-methods approach, employing an explanatory sequential design in Phases I and II, extending to Phase III for the strategy development that guided the synthesis of integrated conclusions and outline recommendations arising from the research. It reaffirmed that all six research objectives and their corresponding questions were achieved, demonstrating the added value of integrating quantitative and qualitative approaches, and of conducting a multi-level analysis across the socio-ecological model. The chapter highlighted how the perspectives of married women and service providers, interpreted through a socio-ecological lens, generated rich, context-specific evidence that directly informed the development of multi-level strategies to improve modern contraceptive use. It then presented objective-by-objective conclusions, acknowledged key limitations of the study, and set out targeted recommendations for different stakeholders, along with suggestions for future research. The chapter closed with the researcher's personal reflection on the research journey and on the fulfilment of personal, professional, and academic development goals.

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INTERNET SOURCE

https://api.phe-ethiopia.org/media/338/ecoregion_newsletter_vol_1.pdf - Location map of Bale Eco-region.

ANNEXURES

ANNEXURE 1: Ethical clearance certificate from the Research Ethics Committee, College of Human Sciences, University of South Africa (Unisa)

UNISA university of south africa

RESEARCH ETHICS COMMITTEE: DEPARTMENT OF HEALTH STUDIES
REC-012714-039 (NHERC)

03 December 2019

Dear Semere Sileshi Belda

HSHDC/939/2019
Student: Semere Sileshi Belda
Student No: 64055272
Supervisor: Prof L Dolamo
Qualification: PhD

Decision: Approval

Name: Semere Sileshi Belda

Proposal: Modern contraceptive use and unmet needs amongst married women in Bale Eco Region: Ethiopia

Qualification: PhD

Risk Level: Low risk

Thank you for the application for research ethics approval from the Research Ethics Committee: Department of Health Studies, for the above mentioned research. Final approval is granted from 03 December 2019 to 03 December 2024.

The application was reviewed in compliance with the Unisa Policy on Research Ethics by the Research Ethics Committee: Department of Health Studies on 03/12/2019.

The proposed research may now commence with the proviso that:

1) *The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.*

2) *Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the Research Ethics Review Committee, Department*

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392, UNISA, 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

of Health Studies. An amended application could be requested if there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.

3) *The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.*

4) *You are required to submit an annual report by 30 January of each year that indicates that the study is active. Reports should be submitted to the administrator HSREC@unisa.ac.za. Should the reports not be forthcoming the ethical permission might be revoked until such time as the reports are presented.*

Note:
The reference numbers [top middle and right corner of this communiqué] should be clearly indicated on all forms of communication [e.g. Webmail, E-mail messages, letters] with the intended research participants, as well as with the Research Ethics Committee: Department of Health Studies.

Kind regards,

Prof JM Mathibe-Neke
CHAIRPERSON
mathijm@unisa.ac.za

Prof A Phillips
DEAN OF COLLEGE OF HUMAN SCIENCES

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

ANNEXURE 2: Letter of support from UNISA Regional Learning Centre

UNISA university of south africa

26 AUGUST, 2020

UNISA-ET/KA/ST/29/26-08-2020

OROMIA REGIONAL HEALTH BUREAU

ADDIS ABABA

Dear Madam/Sir,

The University of South Africa (UNISA) extends warm greetings. By this letter, we want to confirm that Semere Sileshi Belda (student number 64055272) is a PhD student in the Department of Health Studies at UNISA. Currently, he is at the stage of data collection on his doctoral research entitled "**Modern contraceptive use and unmet needs amongst married women in Bale Eco Region: Ethiopia.**"

This is therefore to kindly request your cooperation in assisting the student in any way that you can. We would like to thank you in advance for all the assistance that you would provide to the student. Attached, please find the ethical clearance that the student secured from the Department.

Sincerely,

Dr. Tsige GebreMeskel Aberra

Director

UNISA REGIONAL LEARNING CENTRE
PO BOX 13836 ADDIS ABABA ETHIOPIA
TEL +251-114-350141
FAX . +251-114-350078
MOBILE +251-114-351243
+251-912-191483

University of South Africa
Regional Learning Center
P.O. Box: 13836, Addis Ababa, Ethiopia
Telephone: +251 11 435 2244 / +251 11 435 0078
Facsimile: +251 11 435 1242/ 43/ 44
Mobile: +251 912 19 1483
www.unisa.ac.za

ANNEXURE 3a: Request to conduct the study and permission letter from Oromia Regional Health Bureau in the Bale and West Arsi Zones

Semere Sileshi Belda
(BSc, MPH in RH, PhD (candidate) at UNISA)
Email: 64055272@mylife.unisa.ac.za
Phone: +251-911990843

Date: 26/08/ 2020

To Oromia Regional Health Bureau
Addis Ababa, Ethiopia
Email: _____

Dear/Sir/Madam

REQUEST FOR PERMISSION TO CONDUCT THE STUDY IN THE BALE ECOREGION

I am a PHD student in at the University of South Africa (UNISA). It is a requirement for me to undertake a community-based research project. Currently, I am undertaking a research project entitled “Modern contraceptive use and unmet needs amongst married women in Bale Ecoregion, Ethiopia”.

The aim of my study is to understand the main factors contributing to the low utilization of modern contraceptive methods while having high level of unmet need among married women in Bale Ecoregion, where the findings of the study will guide the development of a context specific strategies used to improve the uptake of modern contraceptive methods use in the study area.

The research process will have two phases: Participants of the first phase are married women of reproductive age. Whereas participants of the second phase are Married women and Health Extension Workers. Ethical principles will be adhered to always. Anonymity and confidentiality will be ensured. Informed consent will be obtained from all respondents and will be kept separate from questionnaires.

Therefore, I request your office to give me a permission letter that enables me to grant the necessary cooperation from the local administration, community representatives and institutions.

Yours truly



Semere Sileshi Belda
(BSc, MPH in RH, PhD (candidate) at UNISA)
Email: 64055272@mylife.unisa.ac.za
Phone: +251-911990843

Biiroo Eegumsa Fayyaa Oromiyaa
Oromia Health Bureau
Saarbet (Calcalii) - Finfinnee

ኦሮሚያ ጤና ጥበቃ ቢሮ
ሳርቤት (ዘይዘዪስ) - ፊንፊኔ

Lakk/Ref.NO BEFO/1186FH/618
Guyyaa/Date 22/12/2017

Waajjira Eegumsa Fayyaa Godina Balee tiif
Waajjira Eegumsaa Fayyaa Godina Arsii Lixaa tiif
B/J

Dhimmi: Xalayya Deggersa Kennuu Ilaala.

Akkuma beekamu Biiroon Keenya Ogeyyii, dhabbile akkasumas namoota qorannoo fi Gamaggama jalqabaa fi Xumuraa geggessuuf propozaala dhiyeffatan propoozaala isaanii madaaluun akkasumas iddoo biratti ilaalchisani fudhatama argatan (approved) dhiyeffatan, propoozaala isaanii ilaaluudhaan waraqa deggersa ni kenna. Haaluma kanaan **Obbo sammaree Silashii** qorannoo mata duree **"MODERN CONTRACEPTIVE USE AND UNMET NEEDS AMONG MARRIED WOMEN IN BALE ECO REGION: ETHIOPIA."** Jedhuu irratti Godina keessan keessaatti qorannoo gaggessudhaaf propoozaala isaani koree **"Health Research Ethical Review Committee"** Biiroo keenyatti dhiyeffatani jiru.

Haaluma kanaan koreen **"Health Research Ethical Review Committee"** Biiroo keenya piropoozaalaa kana ilaaluun mirkanesse qorannoon Kun akka geggeeffamuu murtesse jira. Kanaafuu, hojii qorannoo kana irratti deggersa barbaachisa akka gootaniif isin gaafachaa, **Obbo sammaree Silashii** qorannoon Kun qacceffamee eerga xumuramee booda firii isaa koppii tokko **BEFO** tiif akka galii godhan galagalcha xalayaa kanaan isaan beeksifna.

Anis, **Obbo sammaree Silashii"** wayitti qorannoon Kun qaaceffame xumuramu firii isaa koppii tokko **BEFO** tiif galii gochuuf mallattoo kootiin Ni mirkanessa.

Nagaa Wajjin

Maqaa: **Obbo sammaree Silashii** ***(PI)***

Mallattoo _____

Bilbila; _____

G/G

"Obbo sammaree Silashii"





ANNEXURE 3b: Request to conduct the study and permission letter from Bale Zone Health Office

Semere Sileshi Belda
(BSc, MPH in RH, PhD (candidate) at UNISA)
Email: 64055272@mylife.unisa.ac.za
Phone: +251-911990843

Date: 15/09/ 2020

To the Bale Zone Health Office
Bale Robe, Ethiopia
Phone +251912018785, Email: esheko.5@gmail.com

Dear/Sir/Madam

REQUEST FOR PERMISSION TO CONDUCT THE STUDY IN BALE ECOREGION

I am a PHD student in Doctor of Literature and Philosophy in Health studies at the University of South Africa (UNISA). It is a requirement for me to undertake a community-based research project to study the DLit Ph degree. Currently, I am undertaking a research project entitled "Modern contraceptive use and unmet needs amongst married women in Bale Ecoregion, Ethiopia".

The aim of my study is to understand the main factors contributing to the low utilization of modern contraceptive methods while having high level of unmet need among married women in Bale Ecoregion, where the findings of the study will guide the development of a context specific strategies used to improve the uptake of modern contraceptive methods use in the study area.

The research process will have two phases: Participants of the first phase are married women of reproductive age. Whereas participants of the second phase are Married women and Health Extension Workers. Ethical principles will be adhered to always. Anonymity and confidentiality will be ensured. Informed consent will be obtained from all respondents and will be kept separate from questionnaires.

Therefore, I request your office to give me a permission letter that enables me to grant the necessary cooperation from the local administration, community representatives and institutions.
Yours truly



Semere Sileshi Belda
(BSc, MPH in RH, PhD (candidate) at UNISA)
Email: 64055272@mylife.unisa.ac.za
Phone: +251-911990843

WAAJJIRA EEGUMSA FAYYAA
GODINA BAALEE

BALE ZONE HEALTH OFFICE
የባሌዞን ጤና ጥበቃ ጽ/ቤት

Laakk ቁ/ጤ/ጥ/ቃ/ጽ/ቤ/2332/1

Guyyaa 8/1/2013

W/E/Fayyaa A/Agaarfatiif
W/E/Fayyaa A/Barbareetiif
W/E/Fayyaa A/Dallo/Mannaatiif
W/E/Fayyaa A/Diinshotiif
W/E/Fayyaa A/Gaasaraatiif
W/E/Fayyaa A/Goorootiif
W/E/Fayyaa A/H/Bulluqiitiif
W/E/Fayyaa A/M/Gobbaatiif
W/E/Fayyaa A/B/Gobbaatiif
W/E/Fayyaa A/Sinaanatiif
W/E/Fayyaa A/Gurraadhamoleetiif
W/E/FayyaaA/Madda Walaabutiif

B/J

Dhimmi :- Deeggarsa akka taasiftan beeksisuu ta'a.

Xalayaa lakk.BEFO/HBTFH/618 Guyyaa 22/12/2012 BEFOn nuuf barreesseen **Obbo Sammaree Silashii** qorannoo mata duree **"Modern Contraceptive use and Unmet needs among Married women in Bale ECO region Ethiopia"** jedhu irratti Godina keenya aanalee hunda keessatti barumsa isaanii digrii sadaffaa " PHD" tiif qorannoo gaggeessuu kan barbaadan ta'uu BEFOtti koree **" Health research Ethical Review committee"** tti kan dhiheeffatanii fi koreen kunis xiinxalee qorannoo akka gaggeessan kan hayyameef ta'uu isaa nubeeksisee jira.Haaluma kanaan oobboon maqaan isaanii olitti caqafame kun ragaa qorannoo kanaaf barbaachisu funaanuf gama keessan yeroo dhufanitti deeggarsi barbaachisu akka taasifamuuf isin beeksisna.

Nagaa wajjiin

G/G

- Obboo Sammaree Silashiitiif
Roobee

Tel. 0226651325 /26 /27 / 0226651416 / 0226651432 / 0222445614
Email: bzhoplan@yahoo.com Address: BALE ROBE/OROMIA ETHIOPIA
YEROO DEEBII LAKK. XALAYAA KEENYAA EERAA መልስ በሚሰጡበት ጊዜ የእኛን ደብዳቤ ቁጥር ይጥቀሱ
IN REPLY REFER TO OUR Ref. No.

ANNEXURE 3c: Request to conduct the study and permission letter from West Arsi Zone Health Office

Semere Sileshi Belda
(BSc, MPH in RH, PhD (candidate) at UNISA)
Email: 64055272@mylife.unisa.ac.za
Phone: +251-911990843

Date: 18/09/ 2020

Dear/Sir/Madam

REQUEST FOR PERMISSION TO CONDUCT THE STUDY IN WEST ARSI ZONE

I am a PHD student in at the University of South Africa (UNISA). It is a requirement for me to undertake a community-based research project. Currently, I am undertaking a research project entitled “Modern contraceptive use and unmet needs amongst married women in Bale Ecoregion, Ethiopia”.

The aim of my study is to understand the main factors contributing to the low utilization of modern contraceptive methods while having high level of unmet need among married women in Bale Ecoregion, where the findings of the study will guide the development of a context specific strategies used to improve the uptake of modern contraceptive methods use in the study area.

The research process will have two phases: Participants of the first phase are married women of reproductive age. Whereas participants of the second phase are Married women and Health Extension Workers. Ethical principles will be adhered to always. Anonymity and confidentiality will be ensured. Informed consent will be obtained from all respondents and will be kept separate from questionnaires.

Therefore, I request your office to give me a permission letter that enables me to grant the necessary cooperation from the local administration, community representatives and institutions.
Yours truly



Semere Sileshi Belda
(BSc, MPH in RH, PhD (candidate) at UNISA
Email: 64055272@mylife.unisa.ac.za
Phone: +251-911990843

WAAJIRA EEGUMSA
FAYYAA GODINA ARSII
LIXAA

SHAASHAMANNEE

WEST ARSI ZONE
HEALTH OFFICE

SHASHEMENE

የምዕራብ አርሲ ዞን ጤና ጥበቃ ጽ/ቤት

ሻሸመኔ

Lakk/Ref No. ዞጤ1971/2013

Guyyaa/Date 18/7/2013

WaajjiraEegumsaFayyaaAanaaKokkossatiif

WaajjiraEegumsaFayyaaAanaaNansabootiif

WaajjiraEegumsaFayyaaAanaaAdaabbaatiif

WaajjiraEegumsaFayyaaAanaaDodolaatiif

B/J

Dhimma:-**XalayaaDeegarsaKennuilaala.**

Akkuma seensa irratti ibsuuf yaaliin godhametti BEFO xalayaa lakk **BEFO/HBTFII/618** guyyaa 22/12/2012 **ObboSammareeShilashii** qorannoo mata duree **"Modern Contraceptive Use and Unmet Needs Among Married Women in Bale Eco Region: Ethiopia "**jedhuirratti **aanaa** keessan keessatti qorannoo hojjechuudhaaf propoozaala isaanii koree **"Health Research Ethical Review Committee"**dhiheeffatanii koreenis piropoozaaliiisaani ilaaluun mirknanesse qorannoon kun akka gaggeeffamu xalayaanuuf barressani jiru.

Kanafuu hojii qorannoo kana irratti deggersa barbaachisa ta'ee akka gootaniif isin gaafacha, **Obbo Sammaree Shilashii** wayitti qorannoon kun qaaceffame xumuramu firii isaa koppii tokko godinaf galii akka gootan isin beeksifna.

NagaaWajjin

Girmaa Yaazawu Taaddasa
ጽ/ቤቱ ኃላፊ ዶ/ር

Hajii

G/G

- Gare PHEM Waajjirakeenyaatiif

  Ni/anee

- ObboSammareeShilashii

  B/J

E-mail: [illegible]@yahoo.com, wazhealthdep@gmail.com, | Phone:- +251462110971/1607,
Fax No. 0461101380, Facebook Page:- West Arsi Zonal Health Department

ANNEXURE 4: Participant information sheet

Ethics clearance reference number: REC-012714-039 (NHERC)
Research permission reference number (if applicable): _____
Principal investigator: Semere Sileshi Belda

Date: _____

Dear Prospective Participant

My name is Semere Sileshi Belda, and I am doing research towards a PhD degree in Public Health at the University of South Africa. We have requested funding from *"International Water Management Institute (IWMI)"* for undertaking doctoral research. We are inviting you to participate in a study entitled "Modern contraceptive use and unmet needs amongst married women in Bale Eco-region, Ethiopia". Before requesting your informed consent, we would like you understand the information given below the enumerator read for you.

WHAT IS THE PURPOSE OF THE STUDY?

I am conducting this research to investigate modern contraceptive use and unmet needs for modern contraceptives among married women in Bale Eco-region, Ethiopia. The study is expected to collect information that could identify the determinants of modern contraceptive use and unmet needs in the study area. Understanding multilevel factors or barriers is among the fundamental measures to improve contraceptive method use and reduce the level of unmet needs for modern contraceptive in the community. Consequently, the study findings could help policy makers, programme planners and implementers improve modern contraceptive use in the study area and similar settings through designing context-specific strategies and programs that explicitly target context-specific barriers of modern contraceptive use.

WHY AM I BEING INVITED TO PARTICIPATE?

The participants of the study are married women whose age is between 18 and 49 years that are selected randomly by the research team. There are nearly 989 married women that will be randomly sampled to participate in the study. You are one of those sampled women selected randomly in this village (cluster). All the information you provide is recorded without mentioning your personal identifiers and the information you provide will be kept confidential. However, for those study participants of the FGDs information, opinions and participants' experiences can be heard or shared among the other participants of the FGD.

WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY?

This study will use three data collection approaches (interviewer administered schedule, FGDs, and Key-Informant interviews). Based on the data collection approach you are sampled to participate and respond to:

	Interviewer administered schedule
	Focus Group Discussion
	Key-Informant Interview

The data collection tools are composed of questions that are related with the study objectives. The questions mainly include socio-demographic, socio-economic information, obstetric and fertility related information, information and perceptions related to family planning, practices or use of modern contraceptive methods by you and your partner; interpersonal information including couple discussion, FP communication with other people; institutional information including the proximity of your household to health facilities that provide FP service, FP counselling/communication by health care workers; community factors including gender role, status of women in the community, and socio-cultural influences of modern contraceptive use.

The survey may take an average duration of:

- 45 to 60 minutes if you are participant of the interviewer administered schedule
- 2 hours if you are participant of the FGDs
- 30 to 45 minutes if you are participant of Key-Informant interview

CAN I WITHDRAW FROM THIS STUDY EVEN AFTER HAVING AGREED TO PARTICIPATE?

The participation in this study is based on voluntariness of the respondents who provide their informed consent after reading or listening to the information given in this participant information sheet. There are possibilities that you may refuse to answer a question, or you may end the interview at any time in the middle of the interview process, or you can also refuse to participate in the study entirely, however, your refusal will not restrict you from obtaining any service, information or medical care you need. Please, note that there are no personal identifiers recorded in the data collection tools.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

There will be no financial incentive or payment that a participant of this study receives due to their participation in the study. However, participants could get non-financial benefits. For example, at the end of the interview, the data collectors will provide a brief information about the importance of family planning and modern contraceptive method to the study participants. Those participants of the FGDs will have the chance to discuss an important health issue (family planning) and share views and ideas of other people in their neighbourhood related to modern contraceptive methods. Information generated and shared by the current study will help responsible stakeholders (policy makers, researchers, and program implementers) to made appropriate decisions that improve family planning program in the wider community in the study area and other similar population contexts. For example, identify the factors that influence modern contraceptive use and barriers of modern contraceptive method utilization in the study area, will inform decisions of future programs and strategies of the government and other stakeholders to address actual factors that are hurdling the community from utilizing modern contraceptive methods.

ARE THERE ANY NEGATIVE CONSEQUENCES FOR ME IF I PARTICIPATE IN THE RESEARCH PROJECT?

In general, this study will not pose any physical, psychological or social risk that could threaten or endanger the life of the participants. However, there may be minor discomfort on some of the participant while responding on personal issues like fertility preference,

contraceptive use, couple discussion and perception related to family size or number of children. To avoid the risk of COVID-19 transmission during the interview process, the enumerators and facilitators of FGDs strictly apply COVID-19 prevention strategies including no physical contact with participants, maintain physical distancing of 2 meters from the participants and wear face masks during interview process, and use alcohol based hand sanitizer to clean hands before providing participant information sheet and consent form and also provide had sanitizer to clean hands of participants before and after signing on the consent form. Since there will no physical injury or harm due to the participation of an individual in this study, the study will not have an arrangement of indemnity or insurance coverage in this regard.

WILL THE INFORMATION THAT I CONVEY TO THE RESEARCHER AND MY IDENTITY BE KEPT CONFIDENTIAL?

The data collectors will not record your name in the data collection tools or will not audio record potential personal identifiers except using special codes to identify the specific cluster or location of the interview for the survey and category of FGD participants. Furthermore, the code or potential identifiers will be removed from the data set once their purpose in the research is completed, and no one can link the codes with your responses in the data set or in the published reports.

Apart from the anonymous recording of each respondent's information, there will be mutual understanding on the importance of keeping participants confidentiality by the research team including the researcher, data collectors, data transcribers and other individuals with potential access the data collected from our interview schedule respondents, focus group discussants and in-depth interviews. Reports of the study findings will be presented in scientific conferences and submitted to peer reviewed journals for publication without referring to the names or personal identifiers of the study participants. Therefore, you should know that no one can identify an individual participant's views, opinions or responses included in the reports or publications of the findings.

However, for those participants of the FGDs, members of the FGD in their group will listen or know their views, opinions and responses that may limit the level of keeping participants information or confidentiality for the FGD participants. In addition to clearly

informing the importance of keeping participants confidentiality, confidentiality agreement will be signed by all those involved in the research process including the enumerators, research assistants, data entry clerks, statisticians and FGD discussants to keep confidentiality. The researcher strongly advises you not to disclose personally sensitive issues if you are among the FGD participants and you can individually discuss sensitive issues with the investigator at the end of the FGD.

HOW WILL THE RESEARCHER(S) PROTECT THE SECURITY OF DATA?

The paper-based data that include your answers will be stored in a file box locked in a cupboard in the principal investigators office which will be kept there at least for five years, however the soft copies of the data set will be stored in a computer, external hard disk and web-based data port locked with password. However, the stored data can be further retrieved for additional research purposes by the researcher or can be reviewed by Ethical review committee if applicable.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

The researcher has ethical clearance from the Research Ethics Review Committee (RERC) of the University of South Africa (Ethical clearance certificate number: REC-012714-039 (NHERC)) and here I have a copy of the approval letter that you can read/see it if you wish.

HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH?

If you like to be informed of the final research findings, please contact Semere Sileshi Belda, on Mobile: +251-911-990843 or Email: 64055272@mylife.unisa.ac.za or semesileshi@gmail.com. The findings could be accessible for a period of 10 years (2020 to 2030) for the unpublished report and for unlimited period for the findings published in international or national peer reviewed journals. Should you require any further information or want to contact the researcher about any aspect of this study, please contact the researcher:

Semere Sileshi Belda,
Email: 64055272@mylife.unisa.ac.za or semesileshi@gmail.com.

Should you have concerns about the way in which the research has been conducted, you may contact Prof NL Nkoane email: nkoannel@unisa.ac.za, internal phone number: +27834635215. You can also contact, Chairperson of the Health Studies Higher Degree Committee Prof JM Mathibe-Neke, Email: HSREC@unisa.ac.za.

Thank you for taking time to read this information sheet and for participating in this study.



Semere Sileshi Belda
Student, PhD (candidate) at UNISA
Student number: 64055272
Email: 64055272@mylife.unisa.ac.za, semesileshi@gmail.com
Phone: +251911990843
PO Box: 302, Bale Goba, Ethiopia

ANNEXURE 5: Informed Consent form to participate in the study

I, _____ (Questioner code#), confirm that the person asking my consent to take part in the research “Strategies for enhancing modern contraceptive use amongst married women in Bale Eco-region, Ethiopia”. The enumerator has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation in the study.

I have read (or had explained to me) and understood the study as presented in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the: Interviewer administered schedule [__]; Focus Group Discussion [___]; Key-Informant Individual Interview [___]

I have received a signed copy of the informed consent agreement.

Participant code ……..……
Participant Signature…….Date……
Researcher’s Name & Surname: Semere Sileshi Belda
Researcher’s signature……..…..Date…….

ANNEXURE 6: Participant information sheet in local language (Afaan Oromo)

Odeeffannoo Bargaaffi fi unkaa Heeyyama Hirmaataa
Lakkoofsa heeyyama waraqaa Qulqulluma: - REC-012714-039 (NHERC)
Lakkoofsa heeyyama qorannoo (yoo kan ilaalatu ta'ee) _____
Maqaa Qorataa Sammara Silashi Baldaa
Mata duree qorannoo: -. "Fayyadama karoora maatii ammayyaa fi fedhii hin guutamnee dubartoota abbaa warraa qaban naannoo Ikko Baalee, Itoophiyaa"

Kabajamaa hirmaataa /tuu

Maqaan Koo **Sammara Silashi Baldaa** jeedhama. Ani qorannoo kan (Yuunivarstii Afirkaa Kibbatti, Muummee Qorannoo Fayyaa) wajjin ta'uun galmaa gahiinsa Digrii 3^{ffaa} (PhD degree in Public Health at the University of South Africa) koottif hojeechaa jira. Qorannoon kun gargaarsa maallaqaa dhaabbata *"International Water Management Institute, SHARE-II Project"* irraa argameen kan gageefamuu dha.

Nuutti Qorannoo kan irratti akka hirmaatan kabajaan isin affeeree jira. Akkasumasii heeyyamuma hirmachuu keessan gaafachuun koo dursaa oddeefanno armaan gadiitti isiiniif baraahan kan sirritti duubistaan ykn dhaggefattanii akka hubataan isiin gafaachuu barbaada.

Kayyoon qorannoo kana Maalii?

Ani, qorannoo kanaan Dubartoota Heerruuman gandoota akka sirna ikoo Baaleetti /gareewwan Baaleetti/ jiran keessaa kan karoora maatii amayyaa fayyadamanii fi feedhii fayyadama karoora maatii hin guutaminiif' jeedhu irratti qorachuun barbaada. Qorannoon kanaan oddeefannoowwan dhimmoota murteesoo ittifayyadama karoora maatii fi feedhii fayyadama karoora maatii hin guutaminiif ta'aan irratti ragaalee adda ni bahaa jeedhamee yaadama. Dhibbaa fi sababoota sadarkaa gara garaatti jiraan hubachuun ittifayyadama karoora maatii hamayaa bu'uuran foyyeesuu fi feedhii fayyadama karoora maatii hin guutamiin hawaasaa keessaa jiruu hir'isuu dha. Akkasumasii bu'aan qorannoo kan qaamoota imaamata baasuuf, karoora karoorisuuf fi raawwataaniif ittifayyadama karoora maatii naannoo qorannoo kan foyyeessuuf isaan gargaara. Gama biroon immoo

haala qabatamaa naannoo irratti hundahuun tarsimoo fi sagantaa danqaa ittifayyadam karoora maatii addatti qopheesuuf ni gargara.

Maaliif akka irratti hirmaadhuuf affeeramee?

Hirmaatoon qorannoo kan dubartoota heeruuman umriin isaan waggaa 18 hanga 49 giduu jiran keessaa garee qorannoo gaggeessaaniin akka carraa /faduuliin/ kan filatamanii dha. Dubartoota heerumaan 989 ta'aan akka caraa / tasaa filataman qorannoo kana keessatti ni hirmatuu. Isiinis akka naannoo /ganda/keessaniitii samudaa akka tasaa qorannoo kanaaf filataaman keessa ishee tokkoo dha.

Qorannoo kan keessaatti eeyyuma dhuunfa keessan kan hin ibsaamunee fi iccittin ragaan isin nuuf laatan hund isaa kan eegamuu ta'a. Haata'u malee qorannoo kanaaf kan oluu odeefannoo hirmaatoota marii garee, yaadoota fi muxannoo hirmaatoota argamee garee biroof qooduu ykn dageechiisu ni mala.

Qorannoo kan keessaatti gaheen hirmaana kootti maalin?

Qorannoon kun adeemsaalee sadiin (Gaaffi deebii gaafataan hooganamu, Marii Garee xiyyeefannoo fi Gaaffi fi deebii hirmaatoota murteesso ta'aan) ragaalee barbachisoo ta'aan fuunaana.

Adeemsa sassaabi ragaa irratti hundahuun samudaa hirmatoota armaan gadi keessa tokko itrratti akka hirmaatan filatamitaan jirtuu.

	Gaaffi fi Deebii gaafataan hooganamu
	Marii Garee xiyyeefannoo
	Gaaffi fi deebii hirmaatoota murteesso

Wantoon ragaa ittin sassabamu hund isaan gaafiwaan kayyoo qorannoo wajjin waliitti hidataama qaban kan offi keessatti hammatee dha. Gaafiwwaan caalimaan kan haamatuu odeeffannoo hawaasuma fi haala ummataa, odeeffannoo hawaas-dinagidee, odeeffannoo dahumsaa fi hormataa, odeeffannoo fi yaada karoora maatii wal-qabatan, shaakalii ykn itti fayyadama mala karoora maatii hamayaa kan kee fi abba mana/hadha mana kee, marii dhimma karoora maatii irratti maatii fi namoota biro wajjin tasifamee,

odeeffannoo abba warraa itti fayyadama karoora maattiin dhaabbilee fayyaa keessatt argamu, gorsaa fi barumsaa oggeyyi fayyaan keennaman, dhimma koorniyaa, sadarkaa dubartoota hawaasa keessatti qaban fi dhibba aadaan hawaasa ittifayadama karoora maatii irratti qabu kan offi keessatti hamate dha.

Gidigaleessan bar-gaaffin qorannoo kanaa yeroo armaan gadii kan fudhachu mala:

- Yoo Gaaffi fi deebii gaafataan hooganamu irratti hirmataan daqiqaa 45-60 fudhataa
- Yoo Marii Garee xiyyeefannoo (Focus Group Discussion) irratti hirmataan sa'aa 2:00 fudhataa
- Yoo Gaaffi fi deebii hirmaatoota murteesso irratti hirmataan daqiqaa 30-45 fudhataa

Caraan hirmachuu eerga nadhaqabee booda qorannoo kan keessa bahu ni danda'aa?

Qorannoo kan keessatti hirmachuuf eergaa bareefama heeyemaa dubistaan ykn dhageefataan booda feedhii keessan irratti hundahuun kan hirmaatuu ta'a. Gaafii qorannoo kan keessaa jiruu walakaan ykn gutuuma gutuutti deebiisuu dhisuun ni danda'aam. akkasumasii sababaa qorannoo kan keessatti hirmaataniif maqaa keessanis ta'ee wantii eeynuuma keessan ibsuu kamu kan hin baroofinnee ykn hin qabaminee ta'u isaa akka nuuf hubataan isiniif ibsiina.

Qorannoo kan keessatti hirmachuun bu'a malii qaba?

Hirmaatoon qorannoo kan keessaatti hirmachuu isaaniif kalattin kanfaalitti ykn bu'a maallaqa keenamuuf kan hin jiree dha. Haata'u malee bu'aa maalaqan alaa argachuu mala. Fakeenyaa dhumma gaaffii fi deebii irratti odeeffannoo itti fayyadama karoora maatii irratti argachuu ni dandeesuu. Akkasuumasii hirmaatoon marii garee xiyyeefanoo irratti hirmaatan yaada fi muxxaannoo dhimma itti fayyadama karoora maatii hamayyaa marii irraa dhiyyaatuu irraa barumsaa gudaa argachuu malu. Bu'aa qorannoo kana irraa argaamuu irratti hundahuun qaamin dhimmamitoota (immamata basuu, qoratooni qorannoo fi qaamin hojii raawachiftuu) murtoo sirii ta'a dhimma itti fayyadama karoora maatii hamayaa irratti ummata qorannoon kun irratti adeemsiifameef ykn hawaasa walifakkatuu dabarsuu ni dandeechisa. Fakeenyaaf dhiibbaa fi danqaa itti fayyadama karoora maatii haamayaa akka naannoo qorannootti jiruu adda ni basaa, murtoo fi

furmaata sir ta’ee dhibbaa fi danqaa ittifayyadama karoora maatii hamayaa hawaasa keessa jiru qaama motummaa fi dhimmamitootaaf ni akkeeka.

Qorannoo kan keessatti hirmachoo koo/koottin dhibbaa adda nara gahu jira?

Walumaa galatti qrannoo kan irratti hirmachuun midhaa qaama, rakkoo xiinsamuu fi hawaasuma kamuu kan nama hin saaxiilee dha Haata’u malee yeroo raga dhuunfa ykn maatii dhimmoota akka ittifayyadama kaaroora maatti, wal-hormaata, marii maatii, yaada fi baayina maatii irraatti yeroo yaada keennan saalifachuu ykn itti tolu bachuu ni mala. Tatamsa’inaa dhibee COVID-19 (Koronnaa) ittisuuf tarkaanfidhan akka qaaman wal-tuuqu dhisuu, fagenya qaama hirmaataa irraa haanga metraa 2 eeguu fi haaguggi afaani fi fugnaani kaawachun, akkasimaas unkaa oddefanno fi unkaa haayyama itti keenamu tuquun dura fi booda haarka ofii fi hirmaatichaa saanitayizaraa alkoolii irra qoophaa’en quulqulessu irraa eegama. Qorannoo kanaa irrati hirmaachuu irraan kanka’e midhaan qaama hiirmaata irra gahuu akka hin jiree fi Kanaan walqabatee waligalitteen inshuuraansii godamuuf kan hin jiree dha.

Ragaa anni qoraannoo kanaaf keennuu eeyyuma koo ibsuu iccittin isaa eegmaa dha?

Qorannoo kan keessatti ragaan isiin irraa funaanmuu kamuu meeshaa ittin sassaabuu irraatti maaqa ykn mallatoo eenyuuma keessan ibsuu hin bareeffamu akkasuumasii sagalee keessaan hin warraabamu ragaan keessaan koodii fayyadamuu qofaan walitti qabama. Dabalataanisii eerga hojii ragaa walitti qabu dhumaatee koodii keessaan ni haaqama dhumma bu’aa qoraannoo irrattis kalattin wantii koodii waliin walqabsiifamu kan hin jiree ta’u isaa isiiniif ibsiin.

Qorataan nageenya deetaa/ragaa kan akkamin eega?

Gaafii fi deebiin waraqaa irratti isin irraa funaanamee hundi isaa waggoota 5 (shaniif) waajjira qorataa keessaa sanduuqa furtuu qabu keessaa ni tura. Akkasumasii ragaan ‘soft copy’ dhaan jiruu immoo komputaraa, baxxee jabaa (hard disk) fi toora interneetii (website) irratti iggitaa (password) ni cuufama. Haata’u malee ragaan kan qorannoo caalimaaf qorataan yoo barbadee ykn koreen naamusaa ilaaluuf yoo rabaadamee fayyadamuu ni danda’u.

Qorannoo kun waraqaa qulqulluma namusaa mirkaneessu argatee jira?

Qorataan eeyyama waraqa qulqulluma namusaa mirkaneessu (Lakkoofsii isaa REC-012714-039 (NHERC)) kan ta'ee koree "Research Ethics Review Committee (RERC)' Yunivarsiitii Afrikaa Kibba irraa argatee jira. Akkasumasii qaamin ragaa guuttu ilaaluu barbaduu koopii isaa ilaaluu ni danda'aam.

Bu'aa qoranno kan akkamin argachuu danda'uu?
Bu'aa qorannoo kan argachuu yoo barbaadan ta'ee karaa lakkoofisa bilibila harkaa +251-911-990843 ykn Email: 64055272@mylife.unisa.ac.za or semesileshi@gmail.com obboo Sammara Siilashi Baldaa salphaatti argachuu ni dandeessuu. Dabalataan bu'aa qorannoon hin maxxanfaamin waggoota 10 bara (2020 hanga 2030) fi kan maxxanfamee immoo yeroo hin dangaafamineef barruu biyyoolessaa ykn biyyaa alaa irraa argachuu dandeessu. Yaada dabalataaf qorataa ykn qaamoota qorannoo kan hoggannan argachuu yoo barbadaan kara tessoo armaan gadii kanaan ni argatuu.

Semere Sileshi Belda
Email: 64055272@mylife.unisa.ac.za ykn semesileshi@gmail.com.
Ykn Prof NL Nkoanel email: nkoannel@unisa.ac.za, phone number: +27834635215. Ykn

Chairperson of the Health Studies Higher Degree Committee
Prof JM Mathibe-Neke, Email: HSREC@unisa.ac.za.
Oddeefanno arman olii obsaan duubiistaan/dhageefachuun hubachuu keesaniif akkasumasii qorannoo kana irratti hirmaachu keessaanif Galatooma.



Semere Sileshi Belda
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ANNEXURE 7: Informed consent form in local language (Afaan Oromo)

Hirmachuu keessan Hayyamu

Ani _____ (koodii bar-gaaffi), qorannoo mata duree “Fayyadama karoora maatii ammayyaa fi fedhii hin guutamnee dubartoota abbaa warraa qaban naannoo Ikko Baalee, Itoophiyaa”, akkan keessatti hirmaaduu gaafatamee jira. Haaluma Kanaan aniisi qorannoo kan irratti hirmaachuuf hayyamamaa dha. Akkasumasii adeemsa gaaffi fi deebii keessatti waan jiru hunda jechuun haala, adeemsa, fi bu’aa qorannoo hunda isaa dubisee/dagaheen jira.

Waantoota gaaffi naatii ta’ee gaafachuuf carraa gahaa waan argadeef qorannoo kan keessatti hirmachuuf qophii dha.

Qoranno kan irratti feedhi koon kan hirmadhee fi yeroo feedheetti dhibba tokko malee addan kutuu akkan danda’u hubadheen jira (yoo barbachisaa ta’e).

Bu’aan qorannoo kana bifaa gabaasan, maxxansaa fi/ykn koonfaransii gara garaa irratti akka ibsamu hubadheen jira. Akkasumasii iccittin hirmaachuu fi eeyyumaa koo ibsuu kamu qorannoo kan keessatti akka naaf eegamuus hubadeen jira.

Barrefama fi Waraabiin sagaleen: Gaaffi fi deebii gaafataan hoogganamuu [___]; Marii Garee xiyyeefannoo [___]; fi gaaffi fi deebii namoota murteessoo ta’aan [___] akka raawwatuu wali galee jira.

Garagalicha waraqaa **unkaa hayyamuumaa** irratti mallata’ee fudheen jira

Koodii Hirmaataa _____ Mallattoo _____Guyyaa _____

Maqaa Guutuu Qorataa: - **Sammara Silashi Baldaa** Mallattoo_____ Guyyaa ___

ANNEXURE 8: Structured interview guide

Ethical certificate Ref Number: REC-012714-039 (NHERC)

Dear Prospective Participant

My name is _____ (Enumerator/ Data Collector), I am collecting data from study participants for research undergoing by Semere Sileshi Belda and Professor Bethabile Lovely DOLAMO (Department of Health Studies, University of South Africa) towards a PhD degree in Public Health at the University of South Africa. We are inviting you to participate in a study entitled "Modern contraceptive use and unmet needs amongst married women in Bale Ecoregion, Ethiopia"**.** Before requesting you to give your informed consent, I would like you understand the information given in the participant information sheet about the research purpose, objectives, data collection process, risks, benefits, the right to participate or withdraw at any point from the study, and about confidentiality of information collected from you.

INSTRUCTIONS FOR ENUMERATORS

Apply the COVID-19 prevention measures indicated in the information sheet and provide the participant Information sheet and consent form to the participant to read or read the information to her and clarify if she has any concerns

1. Carefully read or listen to the information on the participant information sheet
2. Answer all questions by carefully listening the question asked by the data collectors
3. Answer all questions as honestly, frankly and objectively as possible
4. Answer according to your own opinion, perception, knowledge and experience
5. All information herewith provided will be treated confidentially. It is not necessary to indicate your name on this interview guide. It may take 45-60 min.

Kebele name _____ Cluster code_____ Household Code_____

If you have any question, you can contact the Principal investigator on these addresses

Semere Sileshi (Mob No 0911990843 or 0920682030) (Email: 64055272@mylife.unisa.ac.za, semesileshi@gmail.com)

Name of interviewer: _____ Signature _____ Date: _____
Name of supervisor: _____ Signature: _____ Date: _____

Consent status:

Do you agree to participate in the study based on the information provided to you?	Consent (Put "X" in the right box)	
	Not Agreed to be interviewed	→ End Interview
	Yes Agreed to be interviewed	↓

Time to start interview: _____

Instruction: Encircle the code corresponding to the interviewee's response or write the responses carefully when needed

SECTION 1: INDIVIDUAL CHARACTERSTICS			
1.1. SOCIO-DEMOGRAPHIC CHARACTERISTICS			
S.No	Questions and filters	Coding Category	Skip to
Q001	How **old** are you now?	Age in completed years [__|__] Don't Know…… 88 No Response…… 99	
Q002	What religion do you follow?	Muslim……1 Orthodox……2 Protestant……..…3 Other(specify)_____	
Q003	To which ethnic group do you belong?	Oromo……1 Somali……..…2 Amahara……..3 Sidama……4 Other (specify) _____	

Q004	What is the highest level of school you attended? (WRITE THE GRADE/CLASS IN NUMBER or "0" IF NOT ENROLLED IN FORMAL EDUCATION)	Grade _____	
Q005	Could you please read a sentence from the information sheet? (ASK TO READ A SENTENCE FROM THE INFORMATION SHEET GIVEN TO HER)	Can't read……..…..0 Read part of a sentence ……1 Can read a sentence……..2	
Q006	Are you employed or do you work some-thing that pays you in cash or in-kind for the last 3 months?	No……0 Yes……..1	
Q007	What is your occupation?	Housewife/Farmer……..…0 Government Employed…...…….1 Private employed……..2 Marchant /petty trade……...3 Daily laborer……..4 Other (Specify) _____	
1.2. HOUSEHOLD AND PARTNER CHARACTERISTICS			
Q008	What is the current age of your husband?	_____ Years (RECORD 00 IF SHE DOESN'T KNOW)	
Q009	What is the educational status of your husband?	Not educated (Illiterate)……..1 Read and write (informal)…...2 Grade 1-6……..…3 Grade 7-12……4 > Grade 12……5	
Q010	How many people live in your household? (ASK THE TOTAL MEMBERS OF HER HOUSEHOLD ONLY)	_____ (#Number of persons)	
Q011	Does your husband have another wife/s, or does he live with other women as if married?	No, he hasn't……..……0 → Q013 Yes, he has.……1	

Q012	If yes to Q011, how many additional wives he has?	_____ (#Number of additional wives)	
Q013	What is/are the main source of income for your household?	Farming……..…..1 Livestock……..….2 Mixed livestock & farming…….3 Employment with salary…….....4 Petty trade……...…5 Other _____	
Q014	Can you estimate the annual amount of household income in birr from main source of livelihood?	_____ Birr (ADD THE INCOME OF BOTH PARTNERS INCLUDING SALARIES AND CONVERT MONTHLY INCOME TO ANNUAL)	
Q015	Does your household own agricultural land or farmland?	No……0 Yes……..1	

Q016	Now I will ask you about the type and number of livestock your household own. →	***16.1*** How many cattle do you own?	_____ # of cattle, (Write "0" if they have no cattle)	
		16.2 How many goats or sheep do you own?	_____ # of goats/ sheep (Write "0" if they have no sheeps/goats)	
		16.3 How many donkeys' /horse/ mule do you own?	_____ # (Write "0" if they have no donkeys/horse/mule)	
		16.4 How many camels do you own?	_____ # of camel (Write "0" if they have no camels)	

Q017	Now I will ask you about the availability of household materials or valuable assets in your household. Do your household have →	HOUSEHOLD ASSETS/ MATERIALS POSSESION		NO	YES
		17.1	A Functional Radio?	0	1
		17.2	A Functional Television?	0	1
		17.3	Mobile phone?	0	1
		17.4	Motorbike?	0	1
		17.5	Bed with mattress?	0	1
		17.6	Electricity?	0	1
		17.7	Refrigerator?	0	1

		17.8	A Toilet for household members?	0	1
		(CIRCLE "1" THERE IS A FUNCTIONAL MATERIAL AVAILABLE IN THE HOUSEHOLD OR CIRCLE "0" OTHERWISE)			
1.3. FERTILITY PREFERENCES AND REPRODUCTIVE CHARACTERISTICS					
Q018	How old were you when you first got married?	_____ years (age at first marriage) (RECORD 00 IF SHE DOESN'T KNOW)			
Q019	How many children you gave birth to? (ALL BIRTHS INCLUDING STILL BIRTHS)	Q19.1. ____ #Total children ever born Q19.2. ____ #Male children ever born Q19.3. ____ #Female children ever born			
Q020	How many live sons/daughters do you have currently?	Q20.1. _____ # Total children alive Q20.2. _____ # Male children alive Q20.3. _____ #Female children alive			
Q021	What is the ideal number of children you would like or wish to have in general?	_____ (# of children desired by women)			
Q022	What is the age of your youngest child? (# OF MONTHS SINCE THE LAST CHILDBIRTH)	_____ months			
Q023	Have you given childbirth in the last 24 months?	No.……..……..0 → Q025 Yes..……1			
Q024	If you gave childbirth in the last 24 months, has your menstrual cycle returned? (***POST P AMENORHEA***)	Menstrual cycle returned…..……0 Menstrual cycle not returned…..1			
Q025	Are you currently pregnant?	Not pregnant……..0 → Q027 Yes, pregnant……1			
Q026	By the time you became pregnant, what was your actual preference of the timing to the pregnancy?	I Wanted to have that time……..1 I would like to be after 2yrs…….2 I do not want at all……..…..…..3 Not sure/no response……..……4			

Q027	Now I would like to ask a question about your last live birth. What was your preference/choice by the time you became pregnant to your youngest baby?	I wished then……..1 I would like to be after 2yrs…….2 I would not prefer at all……3 No response…….…….4	
Q028	Do you believe that you can get pregnant in the future? (FECUNDITY, PHYSIOLOGICAL CAPABILITY)	I cannot get pregnant…..…..0 → Q030 I can get pregnant…..…..……..1 Not Sure…….…….99	
Q029	If you can get pregnant Q028, how long would you like to wait from now before having another pregnancy?	Within next two years……1 After two years……...2 No more wanted……3 Not sure/no response…..……..4	Q031
Q030	If you cannot get pregnant Q027, what is the reason for not capable of getting pregnant?	Believe she is menopause……..1 Surgically Sterilized…….…2 Believe she is sterile/ not fertile…..3 No response…….…..4	

1.4. KNOWLEDGE OF MODERN CONTRACEPTIVE METHODS

Now I would like to talk about family planning - the various ways or methods that a couple can use to delay or avoid a pregnancy.

Q031	Have you ever heard of the term modern contraceptive methods? **(Family planning?)**	No……0 Yes……..1	

Q032 Could you mention the different **Contraceptive Methods** do women/couple use to prevent or space pregnancy?

(MULTIPLE RESPONSES ARE POSSIBLE)

MODERN CONTRACEPTIVE METHODS		YES	NO	
32.1	Oral Contraceptive Pills	1	0	
32.2	Injectable	1	0	
32.3	Implant methods	1	0	
32.4	Intra Uterine Devices (IUDs)	1	0	
32.5	Female sterilization	1	0	
32.6	Male sterilization	1	0	
32.7	Male Condom	1	0	

		32.8	Female Condom	1	0	
		32.9	Lactational Amenorrhea method	1	0	
		32.10	Emergency contraceptive pills	1	0	
Q033	From where/whom mostly did you get information about contraceptives methods? (READ THE LIST FOR THEM AND CIRCLE THEIR CHOICE)	INFORMATION SOURCE		NO	YES	
		33.1	HEW	0	1	
		33.2	Health workers	0	1	
		33.3	Radio or Television	0	1	
		33.4	Neighbors+/Friends	0	1	
		33.5	Husband	0	1	
		33.6	Volunteers/health committees	0	1	
		33.7	Social mobilization by NGO's	0	1	
Q034	What are the sources or places one can get modern contraceptive methods? (MULTIPLE RESPONSES ARE POSSIBLE)	MCM SERVICE SOURCE		NO	YES	
		34.1	Health post	0	1	
		34.2	Health center	0	1	
		34.3	Public Hospital	0	1	
		34.4	Private clinics	0	1	
		34.5	Private Hospital	0	1	
		34.6	Pharmacy or Drug vender	0	1	
Q035	What do you think are the importance or benefits of using an MCM? (please mention some of the benefits)	KNOWLEDGE OF CONTRACEPTIVE BENEFITS		NO	YES	
		35.1	Spacing childbirth	0	1	
		35.2	Limiting family size	0	1	
		35.3	To avoid unwanted pregnancy	0	1	
		35.4	Health benefits to women	0	1	
		35.5	Health benefits to children	0	1	
		36.6	Improves HH economy	0	1	

1.5. MODERN CONTRACEPTIVE METHOD PRACTICES

Q036	Have you or your partner ever used a modern contraceptive method before?	Not ever used……..0 Ever used……..……1	
Q037	Are you or your partner currently using modern contraceptive method?	Not currently using……..…….0 → Q041 Yes, currently using…..…….1	
Q038	If Yes to Q037, What is the type of modern contraceptive method you or your partner are currently using?	Oral Contraceptive Pills……...…..1 Inject able methods……..…..….2 Implant methods…….……..…...3 Male Condom ……..……...4 Female Condom…..……..……5 IUDs……..…..……6 Female sterilization..……..……7 Male sterilization ……..…..……..8 Lactational Amenorrhea method (LAM)...9 → Q040	

Q039	IF THE RESPONDENT SELECTED **LACTATIONAL AMENORRHOEA METHOD (LAM)** IN Q038, ASK THESE THREE ADDITIONAL QUESTIONS (CIRCLE "0 OR 1 BASED ON THE RESPONSE)	CRITERIA FOR LACTAIONAL AMENORRHOEA METHOD		YES	NO	
		39.1	Is your youngest child <= 6 months of age	1	0	
		39.2	Do you feed the child only breast milk? (No water, no animal milk/ Exclusive breast feeding)	1	0	
		39.3	Is your menstruation not resumed after the last childbirth?	1	0	

Q040	By the time you started using the current contraceptive method, were you informed about: →	METHOD INFORMATION INDEX (MII)		Yes	No	
		40.1	About availability of other contraceptive methods?	1	0	
		40.2	About side effects of the method, you are using?	1	0	
		40.3	About What to do if you experienced side effects?	1	0	
		40.4	About the possibility to switch to other method if			

			you encounter problems related to the method you are using?	1	0	

Q041	If not using MCM (in Q037), what is the reason for not currently using modern contraceptive method? (CIRCLE "0 OR 1 BASED ON THE RESPONSE) (MULTIPLE RESPONSES ARE POSSIBLE)	REASON FOR NOT USING MCM		YES	NO	
		41.1	Don't know method	1	0	
		41.2	Don't know source	1	0	
		41.3	Currently pregnant	1	0	
		41.4	Want to be pregnant soon	1	0	
		41.5	Infrequent sexual intercourse	1	0	
		41.6	Had Surgically removed uterus (hysterectomy)	1	0	
		41.7	Infertility (believe she couldn't conceive)	1	0	
		41.8	Health related problems	1	0	
		41.9	Fear of side effects	1	0	
		41.10	Partner opposition	1	0	
		41.11	Religious oppositions	1	0	
		41.12	Respondent opposition	1	0	

1.6. COUPLE DISCUSSION AND CONTRACEPTIVE COMMUNICATION

Q042	In the past 12 months, have you and your husband jointly discussed about MCM use?	Not discussed……..0 Yes, discussed……1	
Q043	Do you think your husband supports/ approves you to use MCM?	No, I don't think……..……..0 Yes, he approves……1	
Q044	Have you ever discussed with your neighbors, friends, relatives about the number of children to have and the use of MCM?	Not discussed……..0 Yes, discussed……1	
Q045	Are you a member of any of the community-based cooperatives, community groups in your village such as forest or other natural resource cooperative, Village Saving and loan groups or any social support group?	Not member of CBOs…….0 → Yes, member of CBOs……1	Q047

Q046	If you are member of any CBO or group, have you ever discussed about family size, family planning with other members?	No……0 Yes……1	
SECTION 2. HEALTH SERVICE AND INSTITUTIONAL CHARACTERSTICS			
Q047	How long (in minutes) did it take for you to go to the nearby health facility and back to your home (round trip)?	_____ minutes	
Q048	What is the nearest health facility type to your household?	Public Health Post……..……..0 Public Health Center……..……..1 Public Hospital…….2 Private clinic……..3 Private Hospital……..…….…….4	
Q049	Have you visited any of the health facilities in the last 12 months?	Not visited……..0 Yes visited…….1	
Q050	Did a HEW (health service provider) visited your household in the last 12 months?	No visited by HEWs……0 Yes, visited by HEWs……..……..1	
Q051	Have you discussed or received FP counselling from HEW in the last 12 months?	No FP discussion/counselling……...0 Yes, had FP discussion/ counselling…1	
Q052	Does your household own a community Health insurance?	Not own health insurance……..0 Yes, own health insurance……1	
Q053	Have you attended a FP education/ information event in the last 12 months?	Not attended……0 → Q056 Yes attended……1	
Q054	If attended a FP information /education event, what was the source?		

SOURCE OF FP EDUCATION		NO	YES	
54.1	Radio/TV/Media	0	1	
54.2	Health education event by HEW	0	1	
54.3	Social mobilization event by NGO	0	1	
54.4	Community based volunteers	0	1	

SECTION 3: SOCIAL NORM
3.1. WOMEN DECISION MAKING AUTONOMY

Q056	Who is the decision maker when you want to use health service for your self	Husband alone……0 Jointly with husband……1 Women alone……..2	
Q057	Who is the decision maker in your household-on-household expenditure	Husband alone……0 Jointly with husband……1 Women alone……..2	
Q058	Who is the decision maker in your household to make large purchase	Husband alone……0 Jointly with husband……1 Women alone……..2	
Q059	Who is the decision maker when you want to visit your relatives or friends	Husband alone……0 Jointly with husband……1 Women alone……..2	

3.2. ATTITUDE TO WARDS JUSTIFICATIONS OF WIFE BEATING

Instruction: For Q060 to Q064, please give your level of agreement or disagreement by giving values ***(1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, or 5 = strongly agree)*** to statements justifying different scenarios husbands give for beating their wives

Q060	A husband can beat his wife for going out without telling him.	Strongly disagree	Dis-agree	Neutral	Agree	Strongly agree
		1	2	3	4	5
Q061	A husband can beat his wife for arguing with him.	Strongly disagree	Dis-agree	Neutral	Agree	Strongly agree
		1	2	3	4	5
Q062	A husband can beat his wife if she neglect to care the children	Strongly disagree	Dis-agree	Neutral	Agree	Strongly agree
		1	2	3	4	5
Q063	A husband can beat his wife she does not cook food properly	Strongly disagree	Dis-agree	Neutral	Agree	Strongly agree
		1	2	3	4	5
Q064	A husband can beat his wife for refusing to have sex with him.	Strongly disagree	Dis-agree	Neutral	Agree	Strongly agree
		1	2	3	4	5

3.3. ATTITUDE TOWARDS CONTRACEPTIVES SOCIAL NORM

Instruction: For Q065 to Q068, please give your level of agreement or disagreement by giving values ***(1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, or 5 = strongly agree)*** to statements on attitude and contraceptive social norm

Q065	Many women in the society use MCM.	Strongly disagree / Dis-agree / Neutral / Agree / Strongly agree 1 / 2 / 3 / 4 / 5	
Q066	Religious leaders and other norm holders support the use of MCM	Strongly disagree / Dis-agree / Neutral / Agree / Strongly agree 1 / 2 / 3 / 4 / 5	
Q067	Most people in your social group (friends, parents, neighbors) support the use of MCM	Strongly disagree / Dis-agree / Neutral / Agree / Strongly agree 1 / 2 / 3 / 4 / 5	
Q068	Women who uses MCM do not encounter negative reaction (sanctions) from their social group	Strongly disagree / Dis-agree / Neutral / Agree / Strongly agree 1 / 2 / 3 / 4 / 5	
Q079	place of residence of the respondent?	Urban……1 Rural……..…...2	
Q080	GEO-SPATIAL INFORMATION OF PARTICIPANT RESIDENCE LOCATION (TAKE THE GPS INFORMATION NEAR THE ENTRANCE OF HH, AND RECORD COORDINATES WHEN THE ACCURACY IS BELOW 6 METER)	E:_____ N:_____ Altitude:_____	
For Women with low awareness about MCM, Provide information on the types of MCM, sources of MCM, benefits of using MCM.		→	End of interview

Interview Completed time: _____

Thank You Very much!

ANNEXURE 9: Afaan Oromo version structured interview guide

(Ethical certificate Ref Number: REC-012714-039 (NHERC)

Maqaa Gandaa _____ Aanaa_____ Kooddii Hirmaataa _____

Qajeelcha: Tooftaalee/Mala tatamsa'ina dhibee Covid-19 ofirraa ittisuuf/dhaabuuf godhaman hubachiisaa/raawwadhaa. Unkaa odeeffannoo hirmaattotaaf erga keenitan booda odeeffannoo unkaa irrati kenname isaanif dubbisuudhaan akka hubatan gargaarsa fi ibsa dabalataa godhaafii/kennaafii.

Kabajamtoota Hirmaattoota Qorannoo Kanaa

Ani maqaan koo _____ jedhama (gargaraa/ttu qorannoo kanaa yammuu ta'u). miseensa gaggessitoota garee qorannoo Obbo Sammaraa Silashii Baldaa fi Piroofessar *BL DOLAMO* (Yunivarsiitii Afriikaa Kibbaa/ UNISA, Dippaartimantii Qorannaa Fayyaa irraa) qorannoo kun sadarkaa ***Digirii 3^{ffaa} (PhD) Fayyaa Hawaasaatiin argachuuf yunivarsitii Afrikaa Kibbaa*** irra lakkofsa haayama (REC-012714-039 (NHERC) argateera. Mata-dureen Qorannoo *"Fayyadama karoora maatii ammayyaa fi fedhii hin guutamnee dubartoota abbaa warraa qaban naannoo Ikko Baalee, Itoophiyaa"* yammuu ta'u, Kaayyoon qorannoo kanaa fayyadama karoora maatii hammayyaa, fedhii hin guutamnee fi sababiiwwan kanaan walqabatan hubachuu ilaala. Yaadni isin nuuf laattan bu'aa qorannoo keenyaaf faayidaa guddaa qaba. Bu'aan qorannoo kanaa tarsiimoo fayyaa haadholee, daa'immanii fi tajaajila karoora-maatii hammayyaa fooyyessuuf godhamuuf galtee ta'a.

Qorannoo kana irratti hirmaachuuf hayyama keessan kennuun/laachuun dura, odeeffannoo waa'ee qorannichaa kan akka kaayyoo, galma, akkaataa odeeffannoo ittiin guuramu, rakkoo fi bu'aalee isaa unkaa isiniif kenname irraa hubannoo gahaa argachuu qabdan. Odeeffannoo unkaa isiniif kenname irra jiru dubbisaa ykn yeroon isiniif dubbisu sirnaan nadhaggeeffadhaa.

Itti aansuun gaaffiidhaan qorannoo wayitiin isiniif dubbisu sirnaan dhaggeeffachuun deebii kessan deebisaa. Deebii keesan haala qabatamaa fi dhugaa irra hundaa'un deebisaa. Deebin nuuf laattan ilaalcha, beekumsaa fi muuxannoo ofii keessan irratti hundaa'u qaba. Odeeffannoon kun icciitiin isaa eeggamaa ta'uu fi maqaan keessan unkaa gaaffii kanaa irratti tuquun dirqama miti. Gaaffii fi deebii godhamuuf deebii kennuu akkasumas yeroo barbaaddanitti addaan kutuu ni dandeettan. Gaaffii fi deebiin goonu kun daqiiqaa 45-60 fudhachuu danda'a.

Gaaffii addaa ykn ibsa dabalataa yoo barbaachise qorataa duraa obbo Sammaraa Silashii (Lakk Bil: 0911990843; Emali: 64055272@mylife.unisa.ac.za) dhaan quunnamuu dandeesu.

Saanduqa itti aanu keessa mallatoo hayyama abbaa/nama ragaa kennee muldhisaa:

Odeeffannoo isiniif kennameen, qorannoo kana irratii hirmaachuuf hayyammamoo dhaa?	Hayyama (Mallatoo "X" deebii irratii muldhiisii		
	Lakki, hin hayyamnee		→ Galatooma
	Eeyyeen, hayyamamaadha		→ Gaafachuu

Maqaa odeeffannoo sassaabaa_____Mallattoo _____ Guyyaa _____

Maqaa supervaayisaraa _____ Mallattoo _____ Guyyaa_____

Sa'aa G/ Deebin kuun jalqabame:_____

QAJEELFAMA: KOODII DEEBII HIRMAATAAN FILATE DURA JIRU ITTI MARSUUDHAAN GUUTAA

KUTAA 1ffaa: HAALA DHUUNFAA			
1.1. Gaaffilee deemograafii fi dinagdee			
Lakk.	Gaaffilee	Koodii deebiichaa	Ce'umsa
G001	Umriin kessan waggaa meeqa?	Waggaa barreessi [_____] Hinbeekuu taanan lakk…….88 Yoo deebii hinkenniin……..…99	
G002	Amanttiin keessan maali?	Musiliima……1 Ortodoksii……...2 Pirotestantii……3 kan biraa yoo jiraate ibsa----------	
G003	Sabni keessan maali dha?	Oromoo……..……1 Sumaalee……2 Amahaara……3 Sidaamaa……4 Kan biroo yoo jiraate ibsaa_____	

G004	Sadarkaan barumsa kessan maalii? (SADARKAA BARNOOTAA LAKKOFSA KUTAA BARREESSAA)	Kutaa_____ (YOO HINBARANE TA'EE 00 GUUTI)	
G005	Barreeffama isiniif kenname irraa hima tokko dubbisaa mee?	Dubbisuu hin dandeessu……0 Jachoota muraasa dubbisuu……..1 Hima guutuu dubbisuu…….2	
G006	Hojii miindaa yokkiin hojii maallaqa argamsiisu ji'oota 3 (sadan darban keessa) hojjattee beektaa?	Miti……..……..0 → G008 Eeyyee……..1	
G007	Yoo hojii galii argamsiisu qabaatte ta'e hojii akkamii hojjattaa?	Hojii qonnaa……...0 Hojii mootummaa……...1 Qaxarrii dhuunfaa…….2 Daldaltuu……3 Hojii humnaa/ Qansiiraa……..4 Kanbiroo taanaan ibsi _____	
1.2. Gaaffilee waa'ee maatii kessan ilaallatan			
G008	Umriin abbaa warraa keetii meeqaa?	Waggaa_____ (Yoo hinbekne 00 barreessi)	
G009	Sadarkaa barumsa abbaa warraa kessanii maali?	Kan hin barratiin……..1 Barreessuuf/dubbisuu kan danda,u……...2 Kutaa 1-6ffa…….3 Kutaa 7-12ffaa…….4 Kuta 12 olii…….…….5	
G010	Baay'inni namaa mana keessan keessa jiraatuu meeqa? (Maatiin mana kessa jiraatu kan masaanuu osoo hindabalatiin lakkoofsaan meeqa?)	Lakkoofsaan _____	
G011	Abbaan warraa kee haadha manaa kanbiraa fuudhee ykn mana biraa maatii godhatee qabaa?	Hin qabu……..0 → Q013 Eeyyee qaba……..…….1	
G012	Deebii G011 yoo qaba ta'e, haadha manaa dabalataan meeqa qabaa?	Lakkoofsaan _____	

<table>
<tr><td>G013</td><td>Maddi galii ijoo mana keessanii maalii?</td><td colspan="2">Qonnaa……..……..1
Loon horsiisisuu…….2
Qonnaa fi loon horsiisuu……..3
Miindaa ji’aa……4
Daldalaa……..5
Kan biroo (ibsi) _____</td><td></td></tr>
<tr><td>G014</td><td>Madda galii ijoo irraa, galiin kessan waggaatti tilmaamaan hammam ta’a?</td><td colspan="2">_____Birri (GALII JI’AA WAGGAATTI JIJJIIRUUN GUUTI)</td><td></td></tr>
<tr><td>G015</td><td>Lafa qonnaa qabduu?</td><td colspan="2">Lakki hin qabnuu……..0
Eeyyeen…….1</td><td></td></tr>
<tr><td>G016</td><td>Itti aansuun lakkofsa fi gosa beeyladoota maatin kessan qabu isin gaafadha</td><td>16.1 Loon meeqa qabduu?</td><td>_____ # lakkofsa looni (dimshaashaan)
(Yoo hinqabnee tanaan “0” barressi)</td><td></td></tr>
<tr><td></td><td></td><td>16.2 Re`oota ykn Hoolota meeqa qabduu?</td><td>_____ # lakkofsa re’oota / hoolota (dimshaashaan)
(Yoo hinqabnee tanaan “0” barressi)</td><td></td></tr>
<tr><td></td><td></td><td>16.3 Harroota, faradoo ykn gaangeele meeqa qabduu?</td><td>_____ # lakkofsa (dimshaashaan)
(Yoo hinqabnee tanaan “0” barressi)</td><td></td></tr>
<tr><td></td><td></td><td>16.4 Gaala meeqa qabduu?</td><td>_____ # lakkofsa gaala (dimshaashaan)</td><td></td></tr>
<tr><td>G017</td><td>Meeshalee kanneen mana keessaa qabdu?

(DEEBI YKN FILLANOO IRA MARSUUDHAAN MULISII)</td><td colspan="2"><table><tr><th colspan="2">MEESHALEE MANAA</th><th>LAKKI</th><th>EEYYEE</th></tr><tr><td>17.1</td><td>Raadiyoo?</td><td>0</td><td>1</td></tr><tr><td>17.2</td><td>Teelevizhinii?</td><td>0</td><td>1</td></tr><tr><td>17.3</td><td>Mobaayila?</td><td>0</td><td>1</td></tr><tr><td>17.4</td><td>Mootora/ Dooqdoqee?</td><td>0</td><td>1</td></tr><tr><td>17.5</td><td>Siree fi firaasha?</td><td>0</td><td>1</td></tr><tr><td>17.6</td><td>Ifaa/ Elektirikii?</td><td>0</td><td>1</td></tr><tr><td>17.7</td><td>Rifirejereetera/ Firijii?</td><td>0</td><td>1</td></tr><tr><td>17.8</td><td>Mana fincaanii dhuunfaa?</td><td>0</td><td>1</td></tr></table></td><td></td></tr>
<tr><td colspan="5">1.3. Gaaffilee seenaa sirna wal hormataa (waa`ee ulfaa, dhala fi daa’immanii) kan ilaalatu</td></tr>
<tr><td>G018</td><td>Yeroo duura heerumtan umriin kessan meeqa ture?</td><td colspan="2">_____ umrii wayita heerumtan (waggaa dhaan)
(YOO HIN YAADANEE 00 BARESSI)</td><td></td></tr>
</table>

G019	Daa'imman Meeqa deettan? Dhiiraa meeqa? Dubara meeqa? (Kan du`e dhalate/tte dabalate)	19.1. ____ # dimshaasha daa'imman dhalatan 19.2. ____ # Lakkofsaa dhiiraa dhalatan 19.3. ____ # Lakkofsaa ijoolle dubaraa dhalatan	
G020	Daa'imman amma lubbuun jiran meeqa qabdu? Dhiiraa meeqa? Dubara meeqa? (Yoo hin qabaanne 00 barressii)	20.1. _____ # Ijoolle amma lubbuun kan jiran dimshaashaan 20.2. _____ # Ijoolle dhiiraa amma lubbuun kan jiran 20.3. _____ # Ijoolle dubaraa amma lubbuun kan jiran	
G021	Akka fedhii kessanitti daa'imman meeqa argachuu barbaaddu?	_____ (# lakoofsa daa'imman barbaadan)	
G022	Umriin daa'ima isa/ishii xiqqaan (quxisuun) meeqa? (UMRII DAA'IMAA JI'AAN)	_____ (Umrii daa'ima quxisuu Ji'aan)	
Q023	Ji'oota 24 darban (waggaa lamaan) kessa daa'ima deesse jirtaa?	Lakki……..0 ➡ Eeyyee..……1	G025
G024	Yoo ji'oota 24 darban kessa daa'ima desse jiraatte, marsaan laguu ykn xurii ji'aa kee erga dettee/dessee booda **sitti deebi'ee**? (POSTPARTUM AMENORRHEA)	Eeyyee/Marsaan Laguu deebi'ee..…0 Lakki Marsaan Laguu hin deebinee...1	
G025	Yeroo amma ulfa qabdaa?	Hin qabuu/ hin beekamu…….0 ➡ Eeyye ulfa qabaa ……..……1	G027
G026	Ulfa qabdaa tanaan, fedhiin ati ulfa`uuf qabdu maal fakkata ture?	Yoosana Ulfa`uun fedhan ture…….....1 Osoo waggaa 2 booda ulfa'een fedha ture…..2 Gonkumaa ulfaa'u hin barbaduun ture.…….3 Hin beekamu/ deebiin hin jiruu……..…….4	
G027	Yeroo daa'imma kee isa quxisuu ulfaa'uun dura fedhiin atii ulfa ta'uuf ykn daa'imma biroo argachuuf qabdu maal fakkaata ture?	Barbaadeettan ulfaa`e.……...……1 Osoo waggaa 2 booda ta'een fedha ture……..……..…..….2 Gonkumaa ulfaa'u hin fedhun turee……..…….…...……3 Deebiin hin jiru….…….…….……4	

G028	Gara fuulduraatti ulfaa'u ykn daa'ima argachuu nan danda'a jette yaadaa? (DAANDEETTI ULFAA'U UUMAMAAN JIRUU)	Ulfaa'u hin danda'uu……..……..0 → ulfaa'u nan danda'a .....…….……..1 Hin beekamu ..…….……99	G030
G029	**G028** irratti gara fuulduraa ulfaa'uf dandeettii qabdan taanaan, ammaan booda yoom ulfaa'u barbaadu?	Waggoota lamaan dhufan kessati……1 Waggaa laman booda…….……...2 Gonkuma ulfaa'u hin barbaadu…….……3 Hin beekamu……..…….…..4	G031
G030	**G028**, Yoo ulfaa'u hin dandeenye, sababiin isaa maali?	Umriin da'uumsa bira darbuu……...1 Baqqaqsanii hodhuun maseenaaye…..….2 Maseenaaye jedhanii yaaduu……...3 Deebiin hin jiruu……..……4	

1.4. Hubannoo maloota karoora maati ammayyaa

Itti aansuun waa'ee karoora maatii, jechuun waa'ee tooftaale adda adda kan haatii warraa (niitii) fi abbaa warraa (jaarsi) akka ulfi wal irraa faffagaatuu ykn ulfi yeroo hin barbaadamnetii akka hin uumamne maloota ittin fayyadaman si gaafadha

G031	Kanaan dura jecha karoora maatii mala ammayyaa jedhamuu dhaggeetanii beektuu? (JECHA AKKA QUSANAA MAATII FA'A DHAGAHUU ISHII)	Lakki hin dhageenye..……0 Eeyyeen dhagaheera…….……...1	

G032 Maloota karoora maatii ammayyaa kessaa kan beektan kam fa'a? mee naaf ibsaa.

(FILANNOO TOKKO OL YOO TUQAN MARAA IRRA MARSII)

KAROORA MAATII AMMAYYAA		EEYEE	LAKKI
32.1	Kiniinii (Pills)	1	0
32.2	Lilmoo (Injectable)	1	0
32.3	Kan irree keessa galu (Implants)	1	0
32.4	Luppii gadamessa kessa galu (IUCD)	1	0
32.5	Ujummoo hanqaaquu dubartoota dabarsu guduunfuudhaan	1	0
32.6	Ujummoo sanyii dhiiraa dabarsu yaaluu salphaadhaan cufuu	1	0
32.7	Haaguggii (Kondomii) dhiiraa	1	0
32.8	Haaguggii (Kondomii) durbaa	1	0
32.9	Harma qoofa hoossisuu	1	0
32.10	Kiniinii attatamaa ulfa tasa ittisuu (Emergency Con/pills)	1	0

G033	Wa`ee maloota karoora maatii ammayyaa essaa dhagessan? (FILANNOO TOKKO OL YOO TUQAN /IBSAN FILANNOO ISAANI LACHUU IRRA MARSI)	MADDA OODEFANOO		LAKKI	EEYEE
		33.1	Ekstenshiinii fayyaa irra	0	1
		33.2	Oggessa fayyaa irra	0	1
		33.3	Radiyoo (Midiyaa irra)	0	1
		33.4	Ollaa ykn hiriyyaa irraa	0	1
		33.5	Abbaa warraa irra	0	1
		33.6	Toola oltoota ykn koreewwan fayyaa irra	0	1
		33.7	Dhaabbilee Mit-mootummaa irra	0	1
G034	Tajaajilli maloota karoora maatii ammayyaa eessa argama? (FILANNOO TOKKO OL YOO TUQAN/IBSAN FILANNOO ISAANI LACHUU IRRA MARSI)	MADDA TAJAAJILA KAROORA MAATI AMMAYYAA		LAKKII	EEYYEE
		34.1	Kellaa Fayyaa	0	1
		34.2	Bufata Fayyaa	0	1
		34.3	Hospitaala mootummaa	0	1
		34.4	Kiliinikii dhuunfaa irraa	0	1
		34.5	Hospitaala dhuunfaa	0	1
		34.6	Kuusa Qooricha ykn Faarmaasii	0	1
G035	Faayidaan Maloota karoora maatii ammayyaa irraa argamu maalfa'a?	FAAYIDAA MALOOTA KAROORA MAATII AMMAYYAA FAYYADAMUU		LAKKII	EEYEE
		35.1	Daa'imman akka wal irraa faffagatanii dhalatan	0	1
		35.2	Lakkofsa maatii ofii murteessuuf	0	1
		35.3	Ulfa hin barbaadamnee ittisuuf	0	1
		35.4	Fayyaa haadhoole foyyeessuuf	0	1
		35.5	Fayyuummaa daa'immaniif	0	1
		35.6	Dinagdee maatii ofii foyyeessuuf	0	1
1.5. Fayyadamaa maloota karoora maati ammayyaa					
G036	Ati ykn abbaan warraa kee Kanaan dura mala karoora maati ammayyaa fayyadamtanii beektu?	Lakki fayyadamnee hin beeknu……0 Eeyyee fayyadamnee beekna.……..……1			
G037	Yeroo ammaa, ati ykn abbaan warraa kee mala karoora maatii ammayyaa fayyadamaa jirtuu?	Lakki hin fayyadamnu……0 → G041 Eeyyeen fayyadamaa jira.…….……1			
G038	G037 irratii, Yeroo ammaa mala karoora maatii ammayyaa fayyadamaa yoo jiraattan gosa kam fayyadamtu?	Kiniinii…….……..….1 Lilmoo (Marfee)……..…….……..….2 Kan irree jala galu ……..…..…...3 Haaguggi (Kondomii) dhiiraa…..…….……..4 Haaguggi (Kondomii) durbaa……..…..……5			

<table>
<tr><td></td><td></td><td>Luppii gadamessa kessa galu ……....…….6
Ujummoo hanqaaquu dabarsu guduunfudhaan……..……..……...…..7
Ujummoo sanyii dhiiraa dabarsu yaala salphaadhaan cufuu……..……...……..8

Laguun marsaa ji’aa hanga deebi’uuti haarma qoofa hoosisu dhaan (LAM)..……..……...9</td><td></td></tr>
<tr><td>G039</td><td>Yoo G038 IRRATII “AMMA LAGUUN MARSAA JI’AA HINDEEBINETI HAARMA HOSSISUU” FILATAN TAANAAN, GAAFFILEE SADEEN KANNIIN GAAFADHU.</td><td>
<table>
<tr><th colspan="2">ULAAGAALEE HARMA HOSSISUU AKKA MALA KAROORA MAATI HAAMAYYAA FUDHACHUUF</th><th>EEYEE</th><th>LAKKI</th></tr>
<tr><td>39.1</td><td>Umriin daa’imma kee isa quxisuu ji’a 6 gadii?</td><td>1</td><td>0</td></tr>
<tr><td>39.2</td><td>Daa’imma kee harma kee qofa hosiftaa? (Jechuun harma kee malee bishaanis ta’ee Aannaan looni hin keenituufi?</td><td>1</td><td>0</td></tr>
<tr><td>39.3</td><td>Laguun marsaa ji’aa kee erga dessee booda sitti hin deebinee?</td><td>1</td><td>0</td></tr>
</table>
</td><td></td></tr>
<tr><td>G040</td><td>Yeroo mala karoora maatii ammayyaa kana fayyadamuu jalqabdee, qabxiilee ful duura kanaa keenaman irrati oggessa fayyaa irra goorsa ykn odeeffanoon sif kennamee jiraa?</td><td>
<table>
<tr><th colspan="2">GOORSA /ODDEEFFANOO MALOOTA KAROORA MAATI IRRATI KEENAMAN (METHOD INFORMATION INDEX)</th><th>EEYEE</th><th>LAKKI</th></tr>
<tr><td>40.1</td><td>Filannoowan ykn malonni karoora maatii kan biroos akka jiran?</td><td>1</td><td>0</td></tr>
<tr><td>40.2</td><td>Waa’ee miidhaawwan cinaa mala karoora maatii isin fudhattan?</td><td>1</td><td>0</td></tr>
<tr><td>40.3</td><td>Yoo miidhaan cinaa mala ammayyaa fayyadamaa jiirtan irra isin qunname maal akka gochuu qabdan?</td><td>1</td><td>0</td></tr>
<tr><td>40.4</td><td>Rakkoon yoo isin qunname gara mala karoora maatii kan birooti akka jijjirachuu dandeessan?</td><td>1</td><td>0</td></tr>
</table>
</td><td></td></tr>
</table>

G041	Yoo (**G037 irrati**) mala karoora maatii yeroo ammaa hin fayyadamne taanaan, sababni hin fayyadamneef maalii?	SABABBOOTA KAROORA MAATII AMMAYYAA HIN FAYADANEEF KAASAN		EEYEE	LAKKI
		41.1	Gosa isaa hin beeku	1	0
		41.2	Madda isaa hin beeku	1	0
		41.3	Ulfan qaba	1	0
		41.4	Dhihooti ulfaa'u waan barbaaduuf	1	0
		41.5	Darbee darbee wal-quunamti saala waan godhufii	1	0
		41.6	Baqaqsanii yaaluudhaan maseenaye	1	0
		41.7	Maseentuu dha	1	0
		41.8	Rakkoo fayyaa waan qabuuf	1	0
		41.9	Miidhaa cinaa sodaachuu	1	0
		41.10	Abbaan warraa hin eeyyamuuf	1	0
		41.11	Amantiin waan dhorguufii	1	0
		41.12	Fayyadamu hin barbaadu	1	0

1.6. Marii karoora maatii abbaa manaa, hiriyoota fi olaa waliin goodhamu

G042	Ji'oota 12`n darban keessati, waa'ee mala karoora maatii ammayyaa abbaa warraa keeti waliin mari'attani beektu?	Lakki, hin mari'ane…….0 Eeyyeen mari'ane……1	
G043	Akka ilaalcha keetii abbaan warraa kee karoora maatii ammayyaa fayyadamuu ni deeggara jettee yaadaa?	Lakki, hin deeggaru…..……..0 Eeyyeen, ni deeggara..……1	
G044	Kanaan duraa waa'ee baay'ina daa'mmani ykn itti fayyadamaa mala karoora maatii ammayyaa ollaa kee, hiriyyoota fi fiiroota kee waliin marii'atee beektaa?	Lakki, hin mari'anee…..…….0 Eeyyeen, mari'aneera……1	
G045	Waldaalee, dhaaba ykn jaarmiyaa/ijaarsa wal-deeggarsa hawaasa keessaa miseensumaa qabdaa? **(Fkn: waldaa bosonaa, liqii fi qusanaa kkf)**	Lakki, miseensa miti…….0 → G047 Eeyyeen, miseensa…...…1	G047
G046	G045 irrati, Miseensa waldaale kessa yoo jirrate, Kanaan duura **miseensota kaawan waliin** waa'ee karoora maatii ykn baay'inaa maatii marii'atanii beektu?	Lakki, hin mari'anee……0 Eeyyeen, mari'aneera…….1	

KUTAA 2 [ffaa]: TAJAAJILA FAYYAA FI HAALA DHAABBILEE

G047	Tajaajila karoora maatii fayyadamuuf gara dhaabbilee fayyaa (Kellaa fayyaa ykn Bufata fayyaa) dhiyeenyatti argamu deemuuf hammam isin deemsisa?	_____ daqiiqaa dhaan (Milaan dhaqaa-galaaf yeroo itti fudhatu barreesii)	
G048	Dhaabbani fayyaa isinitti dhiyeenyan argamuu gosa kami?	Kellaa Fayyaa Mootummaa……...0 Bufataa Fayyaa Mootummaa ……1 Hospitaala Mootummaa..…….2 Kiliinikii dhunfaa…..……..…..3 Hospitaala dhuunfaa…….……4	
G049	Ji'otaa kudha lamaan (12) darban keessati gara dhaabbilee fayyaa yeroo tokko ykn isaa ol deemtee beektaa?	Lakki, hin deemnee…..……..0 Eeyyeen, deemera…….……1	
G050	Eksteenshinin Fayyaa ji`oota kudha lamaan (12) darban keessatti mana kee dhufanii beekuu?	Lakki, hin dhufnee……0 Eeyyeen, dhufaniru..……..1	
G051	Ji'otaa kudha lamaan (12) darban kessatii dhimma karoora maatii irrattii gorsa Eksteenshinii fayyaa irraa argattanii beektu?	Lakkii, hin gorfamne…..……...0 Eeyyeen, gorsa argadheera…...1	
G052	Maatiin keessan tajaajila inshuuraansii fayyaa hawaasaa qabaa?	Lakki, hin qabu……..…..0 Eeyyeen, qabaa……..…1	
G053	Ji'otaa kudhalamaan (12) darban kessatii barrumsa karoora maatii fudhatanii ykn irratti hirmaatanii beektu?	Lakki, hin fudhane……..……0 → G056 Eeyeen, fudhadheera…..……1	

G054	Yoo barrumsa fudhatan ykn hirmanaa qabaatan taanan maddi barumsaa irra argatan maal ture?	SOURCE OF FP EDUCATION		LAKKI	EEYEE
		54.1	Midiiyaa (Radiyoo, TV, Gaazeexaa)?	0	1
		54.2	Eksteenshinii Fayyaa?	0	1
		54.3	Dhaabbilee mit-mootumaa?	0	1
		54.4	Tola oltoota hawaasa kessaa?	0	1

KUTAA 3ffaa: HAALA HAWAASUMMAA FI DUUDHAA HAWAASAA

3.1. Dandeettii murtee dabarsuu dubartootaa

G056	Yeroo **tajaajila fayyaa argachuu** barbaadde, murtee kan dabarsuu eenyuu?	Abbaa warraa qofa……..……..….0 Abbaa warraa waliin…….…….……1 Ana qofa……..……..……..……..2	

G057	Maatii keessan keessa, **dhimma baasii adda addaa maatiidhaaf ooluu** irratii kan murteessu eenyuu?	Abbaa warraa qofa……..…….0 Abbaa warraa waliin…….…..…..……1 Ana qofa……..……..…..……..…..2	
G058	Maatii keessan keessa, **bittaa gurgudda rawwachuu** yeroo barbaadan kan murteessu eenyuu?	Abbaa warraa qofa……..…….0 Abbaa warraa waliin…….……..1 Ana qofa……..……..……..……..2	
G059	Yeroo firoota kee ykn hiriyyoota gaafachuuf deemuu barbaade, akka deemtu kan murtessu eenyuu?	Abbaa warraa Qofa…….…….…….0 Abbaa warraa waliin…….……..1 Ana qofa……..……..……..2	

3.2. Ilaalcha sababiidhan niitii/haadha warra/ reebuf kawaaman irratii

Qajeelcha: Gaaffilee G060-G064 irrati, Sababiwwan jaarsi niitii ofii reebuuf kaa'u haala asii gadii ibsaman irratti sadarkaa itti walii galuu fi walii galuu dhabuu kee agarsiisuuf qabxii ***(1 = baay`ee walii hin galu, 2 = walii hin galu, 3 = giddu-gala, 4 = itti waliigala, 5 = baay'een itti waligala)*** jachuun deebisi

Q060	Niitii abbaa mana ishitti osoo itti hin himiin mana baateef, abbaan mana yoo reebe homaa miti	Baay`ee walii hin galu	Walii hin galu	Giddu-gala	Itti wali gala	Baay'een itti waligala	
		1	2	3	4	5	
Q061	Jaarsi, nitiin isaa yoo atakaaroo/ mormii baayistuu reebuun homaa miti.	Baay`ee walii hin galu	Walii hin galu	Giddu-gala	Itti wali gala	Baay'een itti waligala	
		1	2	3	4	5	
Q062	Jaarsi, niitiin isaa yoo ijjoolee badaduu dhistee reebuun homaa miti.	Baay`ee walii hin galu	Walii hin galu	Giddu-gala	Itti wali gala	Baay'een itti waligala	
		1	2	3	4	5	
Q063	Jaarsi, niitiin isaa yoo nyaata sirnaan qopheessu didee reebuun homaa miti.	Baay`ee walii hin galu	Walii hin galu	Giddu-gala	Itti wali gala	Baay'een itti waligala	
		1	2	3	4	5	
Q064	Jaarsi, nitiin isaa yoo waliin ciisuu didee (yoo qunamtii saala didee) reebuun homa miti.	Baay`ee walii hin galu	Walii hin galu	Giddu-gala	Itti wali gala	Baay'een itti waligala	
		1	2	3	4	5	

3.3. Ilaalcha fi duudhaa haawasa karoora maatii irratii

Qajeelcha: Gaafilee G065-G068 ilaalchi fi duudhaa hawaasa karoora maatii irratti kennamaniif sadarkaa itti walii galuu fi walii galuu dhabuu kee agarsiisuuf qabxii ***(1 = baay`ee***

walii hin galu, 2 = walii hin galu, 3 = giddu-gala, 4 = Itti wali gala, 5 = baay'een waligala) jechuun deebisi**.**			
Q065	Dubartoonni baayeen hawaasa kana keessa maloota karoora maatii ammayyaa fayyadamuu.	Baay`ee walii hin galu: 1 / Walii hin galu: 2 / Giddu-gala: 3 / Itti wali gala: 4 / Baay'een itti waligala: 5	
Q066	Abbootiin amantaa fi manguddonni fayyadama karoora maati ni deggaruu.	Baay`ee walii hin galu: 1 / Walii hin galu: 2 / Giddu-gala: 3 / Itti wali gala: 4 / Baay'een itti waligala: 5	
Q067	Namoonni baayeen naannawa keessan (hiriyyoni, ollaan, maatiin) fayyadamaa karoora maatii ni deeggaru.	Baay`ee walii hin galu: 1 / Walii hin galu: 2 / Giddu-gala: 3 / Itti wali gala: 4 / Baay'een itti waligala: 5	
Q068	Dubartonni maloota karoora maatii ammayyaa fayyadamoo ta'an, sababa kanan hawaasa irraa dhibbaaf/rakkoof hin saaxilaman.	Baay`ee walii hin galu: 1 / Walii hin galu: 2 / Giddu-gala: 3 / Itti wali gala: 4 / Baay'een itti waligala: 5	
Q079	Gandii ykn Bakkeen jireenya keessani baadiyaa moo magaala?	Baadiyaa ……..……1 Magaala ……..……..…...2	
Q080	GEO-SPATIAL INFORMATION OF PARTICIPANT RESIDENCE LOCATION (TAKE THE UTM-GPS INFORMATION NEAR THE ENTRANCE OF HH, AND RECORD COORDINATES WHEN THE ACCURACY IS BELOW 6 METER)	E:_____ N:_____ Altitude:_____	
Xumuruun dura, dubartoota odeeffanoo gahaa waa'ee maloota karoora maatii irratti hin qabneef malonni ykn tooftaaleen karoora maatii ammayyaa maal maal akka ta'anii fi, eessa akka argaman akkasumaas faayidaa karoora maatii fayyadamuu irra argamuu ibsa gabaaba godhiif.			Xumuri

Yeroo Gaaffi fi deebiin itti raawwatame: _____

Hirmannaa keessaniif Galatoomaa!

ANNEXURE 10: Focus group discussion guide

FGD PARTICIPANTS: MARRIED WOMEN GROUPS

FGD Group information

Date of FGD	____/_____/_____					
FGD Category (put an "x" in the box in front of the category)	Married Women Who are using MCM					
	Married Women Who are not using MCM					
Kebele Name						
Agro-ecologic strata (GPS information of FGD location)	Highland (N_____E_____Alt_____)					
	Mid-alt (N_____E_____Alt_____)					
	Lowland (N_____E_____Alt_____)					
# of Participants						
Participant Code	Age in Years	Education grade	# of children	Occupation	Years of marriage	Participant consent
Moderator initials						
Note taker initials						
Start Time						
End Time						

Introduction to the FGD session

My name is _____ (moderator of the focus group discussion). We are conducting a study entitled "Modern contraceptive use and unmet needs amongst married women in Bale Ecoregion, Ethiopia". Dear participants, you are invited to participate in the mentioned study which is being conducted by Semere Sileshi Belda (for the fulfilment of PhD in Public Health in the Department of Health Studies, University of South Africa) under the supervision of Professor BL DOLAMO.

The study has got Ethical certificate (Ref number: REC-012714-039 (NHERC)) from the University of South Africa and permission to collect these data was also granted from Oromia Regional Health Bureau, Bale Zone and West Arsi Zone Health Department (see copies of ethics certificate and permission letters).

Dear FGD participants, here are copies of participant information sheet for you to read yourself or to be read by moderator (for those who cannot read) for you and get adequate information about the study purpose, how and why you participate in the study, risks and benefits due to participation, level of confidentiality of information, the right of having to withdraw from the study or not to respond to some of the study questions listed in the discussion guide, and security of the collected information.

The reason you were selected for this discussion is solely because you are member of the community in_____ Kebele, _____ Woreda located in the study area of our study. We like to get your opinion and ideas about the issue of family planning, modern contraceptives, and related opinions so that, we can better understand the issue and learn ways and made appropriate strategy recommendations to improve the access to information and service utilization and decrease unmet needs for modern contraceptive in Bale Eco-region, Ethiopia.

May you please read or listen to the detailed information provided in the participant information sheet as I read it loudly for you. You can ask any question or request for further explanation for anything you did not understand very well. Thank you for taking time out of your schedule to participate in this discussion and the discussion will take approximately 1.5 – 2.0 hours' hours, at most. We will voice record your discussions and take notes to capture and retrieve relevant information that each of you may raise in the FGD.

Read Participant Information: Now let me read the information sheet for you, please carefully listen to me so that you can acquire information about the study and decide to participate or not in the FGD.

By having all the information, you received about the study in my reading earlier, may you please give us your informed consent by signing in the consent form distributed to you?

No, [___] I do not Agree to participate in the FGD ⟹ Allow her not to participation.

Yes, [____] I agree to participate in the FGD and to the recording of the FGD and have received a signed copy of the informed consent agreement.

⇓

Participants who consented should be indicated in the participant background information table (Fill in the first page) and start with the FGD through setting ground rules together with participants who gave their informed consent.

Ground rules

Let's start by sitting around the circle and introduce each other's code (give code to participants) and introduce members of the research team by describe each of their roles.

Before we start, I would like to remind you that there is no right or wrong answers in this discussion. We are interested in knowing what each of you think, so please feel free to be frank and to share your point of view, regardless of whether you agree or disagree with what you hear. It is very important that we hear all your opinions. You probably prefer that your comments not be stated to people outside of this group. Please treat others in the group as you want to be treated by not telling anyone about what you hear in this discussion today.

Table: FGD Questions guided by socio-ecological framework

	Main FGD Point or Question	Follow up and Probing Questions
	Intrapersonal (Knowledge and Perception)	
1	Could you please explain what Birth spacing or spacing the age between subsequent childbirths?	a. Explain what woman usually do when she wants to extend the time of next pregnancy for some period? b. What is the preferred duration of spacing age between subsequent childbirths? Why? c. What are Advantages of spacing childbirth? Any disadvantage?
2	Please describe your understanding of family planning services. What are the services? What methods? How effective?	a. What are family Planning for? Timing of pregnancy or childbirths? Number of children? What else? b. What are the FP Services? (Counselling, Method provision and treatment of infertility? STI?) c. Describe the different family planning/contraceptive methods you know about? d. What are the contraceptive method classifications? (Probe: modern vs traditional methods? short acting methods vs long-acting methods, and permanent methods?) e. In your opinion, how well or poorly do family planning/contraceptive methods work to prevent pregnancy? f. Who do you think should use family planning/contraceptive services? *Probe for marital status, parity, age (including teenagers), etc.*
3	In your opinion, what are some of the benefits or advantages and disadvantages of using modern contraceptive methods?	a. Apart from preventing pregnancy, do they have other positive effects? (*probe: health-related benefits, economic benefits, social benefits?)* b. What do women who use MCM get (advantages) in gender equality? (Probe: Education, Work, economic?) c. What do women <u>like</u> most about using different MCM? (Probe for specific advantages of different methods?).

		d. What women and girls do not like about using MCM? Why? (Probe for specific things they don't like about different methods?)
	Institutional level	
4	How do women access family planning and contraceptive services in your community? Tell us accessibility? Available methods and providers?	a. Discuss the availability and access of different FP Services and contraceptive methods (Explore where, how they get the method, travel requirements, who they get them from?) b. How many types of MCM are routinely available in the nearest HF? c. Tell us the counselling and long-acting methods provided in the nearby HF? d. Tell us about availability of trained service provider for long acting and permanent methods? e. Discuss if there is a contraceptive method you wish to try but it is not available at nearby HF?
5	Women, girls, couple and families go through different experiences using family planning and MCM. What are some of the experiences you or your friends have encountered?	a. What were your experiences when initiating a family planning/contraceptive method compared with continuation of the method chosen? b. Tell us experiences of women who may changing/shift a MCM they were using to another method? *Explore why, and what methods?*
6	Can we discuss your experiences accessing MCM and FP services?	a. How did you know about the method/s available? b. Did you seek out these family planning/contraceptive services, or someone approached you to use these services? c. How was family planning/contraception approached and discussed with you? [if participant refers to healthcare provider*, explore questions in 07_ below] d. Tell us about your main sources of health information about family planning/contraceptive use, risks?
7	Can we discuss your experiences with health care providers or HEWs when seeking or being spoken to about family planning/contraceptive services? [Note to interviewer: Remember to ask specifically about initiation or continuation of use]	Explore attitude of health care providers during visit. a. Did you initiate the discussion of family planning/contraceptive services? How did the health care provider react? b. If the health care provider initiated the discussion, how did they go about it? c. Did you ask questions and how did the health worker respond to your queries? d. Were your concerns effectively addressed by the health care provider? e. Please tell us your experience of any difficulty in keeping appointments and follow-up for continued contraceptive/family planning use?
8	Know I want to invite 1 or 2 women who are MCM users to tell us your contraceptive use story from the beginning till now?	a. What motivated or initiated your need to space or limit pregnancy? b. How did you first decided or wanted to space pregnancy? c. How did you raise this issue with you husband, if any? What was his role and his responses? d. How did you come to choose the MCM method?

		What was the role of the service provider? HEWs?
9	What difficulties you encountered while using the current MCM and how do you deal with these difficulties?	a. Access to the preferred method choice? b. Any side effects or problem? c. How do your coup up with them?
III	Interpersonal level	
10	Let us talk about the people in your life, how supportive are they about using MCM?	a. Who are these people? b. What was the feedback of people to you? How do you describe their support or discouragements? c. Who is supportive and non-supportive? d. How do you feel about these people and their views?
11	Who are the most important people women discuss about family planning and contraceptive methods? Why? And How?	Probe for • Partner • Friends • Health workers • Community leaders • Religious leaders • Community Based Organization Members Explore why these people are the most important.
12	Explain how often couple in this community discuses and decide on number of children, spacing childbirth, and MCM use?	a. Do women usually discuss with their husband about birth spacing or family size and MCM use? If yes how? If no, why? b. In your locality, how do decisions about contraceptive use made? c. Discuss experience of women in this community who use contraception without their husband's permission? How do husbands react? Why do you think that?
Unmet need		
Reason For Unmet need: Next, we will discuss on the reasons for not using MCM despite married women's interest to prevent unwanted pregnancies. Now let's discuss about women who either want to stop or want to postpone another pregnancy but are not currently using a modern contraceptive method. "*Such women have an "unmet need" for MCM and are the logical primary audience of family planning program efforts.* Understanding such women provides information on the size of an extremely important population sub-group for FP program management: women at risk of pregnancy with an apparent need for FP services based upon their expressed desire to limit or space future births, but who do not use effective contraceptive method.		
13	In your opinion, what are the main reasons that hinder married woman who want to post pone pregnancy for at least two years or woman who do not want more childbirth from using a modern contraceptive method?	a. How do you feel about Problems of accessibility FP program to women's MCM non-use regardless of their wish to post pone or prevent pregnancy? Explain? b. What is the role of poor communication and no counselling by trained provider on nonuse of MCM by women despite wishes to prevent or postpone pregnancy? How? c. Discuss how women's decision-making inability in their household hinder them from using MCM? d. How do you describe fear of side effects of modern contraceptive for nonuse of MCM despite women's wish to prevent or postpone pregnancy? e. Please explain some of the Misinformation and Myths that prevent women from using MCM despite wishes to prevent or postpone pregnancy?

		f. Tell us about characteristics of husband opposition for women's MCM nonuse despite their wish to post pone or prevent pregnancy? g. Please describe some of the social pressure (e.g., religious reasons, stigma) that hinder women from using MCM regardless of their interest to post pone or prevent pregnancy?
IV	Community and societal level	
14	What is your observation on magnitude of modern contraceptive method use by married women in this community? Do you think most women use or not? Discuss the common characteristics of women who use MCM and of those who do not use MCM.	a. Do you think most women in this community use MCM? What proportion of them? b. What are the characteristics of women who often accept and use MCM in this community? *(Probe: Married? Educated? Working/ employed women?* c. What are the main characters of women who do not accept or not use MCM? d. Are there progressive change in MCM service use? Explain change in number of MCM users over the last 4 or 5 years? e. What do you think are the facilitators of change in MCM Use in this community?
15	What do people in your neighbourhood and in your faith, community say the most often about Modern Contraceptive methods use?	a. How do you perceive Views of Religious leaders? CBO members? Peer groups? b. Do they support or prohibit use? Why? In what circumstances do they support or prohibit MCM use? c. Are there more acceptable methods or specific unacceptable contraceptive methods in this community? Which ones? Why? d. Do women who use MCM encouraged or discriminated by social groups? How?
16	In your opinion, what do women see as their biggest constraints to accessing FP services at this facility? How do these constraints be addressed?	Prompts, if needed: a. Distance and/or access (e.g., hours, waiting times, provider availability or attitude) b. Infrastructure (e.g., privacy, utilities) c. Lack of information, including lack of (appropriate) printed materials d. Cost (including supplies)/fees e. Sociocultural issues (e.g., myths, biases, sex of staff, religious prohibition)
17	Let's discuss on the common Myths, Misinformation and Disinformation on MCM. What are the common frustrating false information or unrealistic says people in this community say?	a. Says like MCM cause infertility? b. Pills accumulate in abdomen? c. Sin if death with implant inside body? d. IUDs disappear inside the abdomen? What other?
18	Could you discuss religious or cultural barriers or facilitators to accessing family planning/ contraceptive services?	a. Describe religious and cultural issues being barriers and b. Describe facilitators at both religious and cultural level? c. How can these barriers be overcome?
19	In your opinion, what should be done further to	a. Capacity of service providers and institutions? Supervisions? Equipment? Supplies?

	increase MCM use by married women? What strategies do you recommend supporting women with unmet need to use MCM?	b. Service provision modalities? Mobile and outreach? Private? c. Involvement of influential community members and political leaders in promoting MCM? How and Why? d. Communications strategies to address cultural, religious and gender norms (e.g., roles of men and women, traditional ideas of ideal family size)? How?
Closing Now we come to the end of our FGD. Let me read the note taken on the discussion that summarize the key points indicated in the FGD guide……. Is there anything else or is there anything to correct? Thank you very much for your time and sharing your views and opinions. The information you have provided will help us to improve the family planning program in Bale Eco-region and other similar settings. Do you have any questions to ask before closing this section?		

ANNEXURE 11: Local language (Afaan Oromo) version FGD guide

HIRMAATA MARII GAREE XIYYEEFFANNO: GAREE DUBARTOOTA HEERUMANII

ODDEEFFANNOO GAREE `MARII GAREE XIYYEEFFANNO`

SEENSA MARII GAREE XIYYEEFFANNO

Maqaan koo _____ (haala mijeessa marii garee xiyyeeffanno). Nuyi mata duree “Fayyadama karoora maatii ammayyaa fi fedhii hin guutamnee dubartoota abbaa warraa qaban naannoo Ikko Baalee, Itoophiyaa” jedhamuu irratti qorannoo adeemsisaa jira. Kabajama hirmaata, isinis qorannoo Obbo Sammaraa Silaashii Baldaa (Barataa digrii Sadaffaa (PHD) kan Fayyaa Hawaasaa dipaartimeentii Fayyaa) Yuniversitii Afriikaa kibbatti piroofeseraa BL DOLAMO`N hogganamuu/deggaramuu garee qo’annoo keenyaa taatanii filatamtanitu.

Qorannoon kun ragaa sonaa kan argate yoo ta`u (xalayaa lakkofsaa: REC-012714-039 (NHERC) Yuunivaarsitii Afriikaa Kibbaa fi ragaa qorannoo kanaaf barbaachisuu funanuudhaaf immoo Biiroo Fayyaa Oromiyaa, Waajjiraa Eegumsaa Fayyaa Godina Baalee fi Arsii Lixaa irraa kan argate dha (gara-galcha ragaa sonaa fi xalayaa eeyyamaa armaan gadiitti ilaali).

Kabajamoo hirmaata marii garee xiyyeeffanno, kun koppii waraqaa hirmaatan dubbifatuu yookiin haala mijeessaan isiniif dubbisuu (dubbisuu kan hin dandeenyef) yoo ta`u waa`ee qorannoo kana irratti kaayyoo qoronichaa hubaachuu, faayidaa fi miidhaa qoronichaa beekuu, iccitii eeguu, mirga yeroo barbaadanitti addan kutu yookiin gaaffilee qorannoo qajeelfama marii kana keessaatti tarreffaman gaaffii deebisuu hin barbaadne deebisuufis kan hin dirqamnee fi nagenyumman oddeeffanno nuf kennitan eegama dha.

Bakka qorannoon kun itti adeemsifaamuu aanaa_____ganda_____keessaati sababa isin jiraata yookiin hawaasaa ganda kana bakka waan buutaniif qofa marii kana keessaatti qooda fudhata/hirmataa/ taatanii filatamtan. Waa`ee karooraa maatii, qorichoota ammayyaa ulfa ittisaan fi yaadoota kana fakkatan irraatti yaadni isin nuf laatanii fi ilaalcha keessaan dhimmicha gad fageenyaan akka hubanuu, tarsiimoo sirrii ta`ee bocuudhaan/qopheessudhaan waliin gahisa odeeffannoo, itti fayyadama tajaajila foyyeessuu fi dubartoota qorichaa ulfa ittisan fayyadamuu barbadanii garuu hin fayyadamnee gad xiqqeesuu keessaatti shoora olaanaa waan taphatuuf yaada keessan akka nuf laatan kabajaan isin gafanaa.

Waraqaa oodefanno hiirmaatota kana sirritti dubbisuudhaan yookiin dhaggeeffachuudhaan (sagalee olkaaseen siniif dubbisa) oddeeffanoo fi yaada nuf kennu dandeessu. Wanti isinif hin galee yookiin marii keessatti isin rakkisee yoo jiraate yeroo kamiyyuu gafachuu ni dandeessuu. Yeroo fi sagantaa qabdaan irraa hir`iftanii marii kana irraatti hirmaachuuf eeyyamamoo waan taataniif guddaan isin galatteffadha. Mariin kun tilmaaman saa`aatii 1:50 – 2:00 fudhata. Marii keenyaa yeroo adeemsiifnuus yaadootni/oddeeffannoo/ barbaachisoon isin marii keessaatti kaaftan akka nu jala hin harcaanee fi deebifnee itti fayyadamuuf akka nuf toluutti warabbii sagalee fi yaadannoo qabacha adeemuu keenya akka nuuf hubattan barbaana.

Odeeffannoo Hirmaataa Dubbisuu: waraqaa oddeeffanoo hiirmaatota irraa yeroon isinif dubbisuu caalisaan na dhaggeefachuudhaan marii keessatti hirmaachuu fi hirmaachuu dhiisuu keessaniif odeffannoo ittin murteesitan ni argatu.

Odeffannoo kana hunda argachuudhaan, waa`ee qo`anicha dubbisa keenya dura keesatti waan argattanif/hubattaniif/ walii galtee fedhii irratti hundaa'een qo'annaa kana irratti feedhii keetiin hirmaachu kee mallattoo keessan uunkaa mallattoo fedhii haayamamttota irrati mirkanneesaa?

Mallattoo waligaltee feedhii irratii huundaa'e uunkaa mallattoo irratii guutaa:

Hirmataan walii galtee kana fedhii isaattin waliigalee gabatee odeffannoo seensaa armaan gadii keessatti agarsifamuu dhaan hirmaattota marii kana kessaatti hirmaachuudhaaf walii galan waliin marii calqabuun ni danda`ama

Guyyaa marii garee xiyyeeffanno	____/_____/_____	
Gosa marii garee xiyyeeffanno (gosa hirmaata fulduraati mallattoo `x` sanduuqa keessaatti katabi)	Dubartoota heerumanii Mala ulfa ittisuu ammayyaa fayyadama jiran	
	Dubartoota heerumanii Mala ulfa ittisuu ammayyaa fayyadama hin jirre	
Maqaa gandaa		
Agiro Ikoolojii (GPS information of FGD location)	Olka`insa olaanaa (N_____E_____Alt_____)	
	Olka`insa_Giddu_galeessaa (N_____E_____Alt_____)	
	Olka`insa_Gad_aanaa (N_____E_____Alt_____)	
Baayina hirmaattoota		

Koodii hirmaataa	Umrii (waggaadhaan)	Sadarkaa barnootaa	Baayina ijoollee (Dhi/Dub)	Hojii	Erga heerumtee waggaa meeqa/turtii gaa`ilaa	Waliigaltee hirmaataa

Haala mijjeessa	
Yaadannoo qabataa	
Yeroo calqabbii	
Yeroo xumuraa	

Seera Marii tumamee

Mee geengoo uumuudhaan teenee marii haa calqabnu, akkasumas koodiin hirmatoota mariidhaaf haa kennamu fi garee qorannoo kana keessaatti namoota qooda fudhatan ga`ee hojii isaanii hirmaatootni akka beekan taasisuu.

Osoo hin jalqabiin dura, marii kana keessaatti deebiin sirrii fi sirrii hin taane akka hin jirre isin hubachisuun barbaada. Nuti kan barbadnuu tokkon tokkon keessan gaafilee ykn dhimmota mariidhaaf dhiyaatan irrati maal akka yaadani beeku dha. Yaada ka`ee hundaa itti walii galtuus galuu dhistuus rakkoo hin qabu. Kanaaf yaada kee bilisaan nuf qoodi. Yaada kee dhaga`uun nuf baayee barbachiisa dha. Akkuma isiin yaadni keessan akka namoota garee Kanaan aala jiraniif hinhimamnee barbaadanitti, yaada ykn ilaalcha namooni marii kana kessa kaasan namoota biro garee Kanaan ala jiraniif hiimu hinqabdan.

Uunka Marii Garee

Uunka gaaffii marii garee xiyyeeffannoo utubduu hawaas-ikoolojii dhaan qajeelfamuu

	Gaaffii yookiin qabxii marii garee xiyyeeffannoo ijoo	Hordoffii fi gaaffilee iccitii ittin gafatan
I	Dhuunfaa (beekumsa fi ilaalcha)	
1	Dhaloota addan fageesuu yookiin waggaa dhaloota daa`imma itti aane dhufu qabu addan fageesuun akkamiifi maal akka ta'ee mee nuuf ibsaa?	d. Dubartootni yeroo hundaa ulfa isaanii isa itti aanuu yeroo murtaa`adhaaf yoo dheeressu barbadan maal akka godhan naf ibsi? e. Turtiin waggaa dhaloota daa`ima dura fi daa`imma itti aane dhufu qabu waggaa meeqa yoo ta`e gaarii dha? maaliif? f. Bu`aawwan yookiin faayidaan dhaloota daa`imanii addan fagessuun qabu maalii dha? Miidhaan isaa hoo?
2	Hubanna ati tajaajila karooraa maatii irraatti qabduu naf ibsi mee? Tajaajiloota akkamii? Maloota akkamii? Haagam takka bu`a qabeessa?	g. Maaliif karoorsinaa? Yeroo ulfaa ykn dhaloota daa`imaa? baayina ijoollee? Gara bira? h. Tajaajiloota karoora maatii maalfa'a dha? (gorsa, maloota kenninsaa fi yaalii maseenummaa? dhibee nafa saala ittisuufi yaalu kkf?) i. Waa`ee maloota karoora maatii /qorichoota ulfa ittisan adda addaa waan beektu naf ibsi? j. Qoodama/gosoota qorichaa ulfa ittisaan maal fa`a? (Gaaffii iccitti kaastu: maloota ammayyaa fi aadaa? Maloota yeroo dheeraa fi gabaaba fi maloota dhabbataa?) k. Akka yaadaa keetii, karoori maatii yookiin qorichi ulfa ittisuuf fayyaduu ulfa ittisuuf haala kamiin ol aanaa fi gad aanaa ta`uu danda`aa? l. Tajaajila karoora maatiitti/qoricha ulfa ittisuutti eenyuutu itti fayyadamuu qaba? *(Gaaffii iccitti kaastu: maalumma gaa`eela,baayina ijoollee qabanii,waggaa fi kkf*)
3	Akka yaada keetii, bu`aa yookiin faayidaa fi miidhaan Qoichoota maloota ittisa ulfaa ammayyaa muraasni maali dha?	e. Ulfa ittisuun malee, faayda biroo qabaachu danda`a? (Gaaffii icittii kakastu: bu`aa Fayyaa, bu`aa Siyaasa, bu`aa Dinaagdee, bu`aa Hawaasumaa irraatti hunda`ee) f. Wal qixxumma Koorniyaa idileessuu keessatti Dubartootni Mala ulfa ittisuu ammayyaa fayyadaman bu`a maalii argatu? *(Gaaffii iccittii kakastu: Barnoota, Hojii, Dinaagdee?)*

		g. Mala ulfa ittisuu ammayyaa garagaraa fayyadamuu irra dubartooni yaroo baaye maal jaallatuu? (*Gaaffii iccittii kakastu maloota adda addaa bu`aa murtaa`a ta`eef).* h. Mala ulfa ittisuu ammayyaa garagaraa fayyadanuuf yeroo baayee dubartootni fi shammaraan maal hin jaallatan? Maaliif? (*Gaaffii iccittii kakastu maloota adda addaa waan murtaa`a ta`eef isaan hin jaallanee).*
II	Sadarkaa dhaabbilee	
4	Hawaasaa keessan keessatti dubartootni tajaajila karoora maatii fi qorichoota ulfa ittisan haala kamiin argatu? Argama fi jiraachuu maloota fi tajaajila kennitoota ibsaa?	f. Argama fi jiraachuu tajaajila karoora maatii fi maloota qorichaan ulfaa ittisan adda addaa irratti marii haa goonu (Eessatti, malicha haal akamiin argatu, geejibaaf wanta barbachisuu, akkamiti argatuu? adda baasi/sakkata) g. Dhaabbilee fayyaa isinitti dhiyoo jiruu keessaatti, maloota ulfa ittisaan ammaayyaa yeroo hunda kan argamuu gosa kam fa'aa? h. Dhaabbilee fayyaa isinitti dhiyoo jiruu keessaatti, haala tajaajila karoori maatii yeroo dheera fi gorsi karoora maatii ibsii? i. Haala oggeesotni fayyaa tajaajila karoori maatii yeroo dheera kennuf leenjifaman leenjiin isaani ga'aa jettani yaaduu? akkamiti? j. Dhaabbilee fayyaa isinitti dhiyoo jiruu keessaatti muxanoo ykn taate maloota ulfa ittisan fayyadamuu barbadanii garuu tajaajila dhabdan jiraanaan mee nuuf himaa?
5	Dubartoota, Shammaraan, abbaa manaa fi haadha manaa fi maatii kan karoora maatii fi maloota amayyaa ulfa ittisaan muxannoo adda addaa keessa dabarsaan. Muxxannowwan adda addaa ati yookiin hiriyaan kee mudaate muraasni maali?	c. Karoora maatii / mala ulfa ittisuu yeroo calqabdee fi erga itti fufinsaan fayyadamtee booda yeroo wal bira qabdee madaaltu Muxannoon kee maalii fakaata? Haala/akkata/ kamiin jalqabdee? Enyuu waliin mari'atee? d. Dubartootni Karoora maatii / mala ulfa ittisuu erga fayyadamanii booda mala biratti haali itti jijjiruu danda'an maalfa? Maaliif? Malakamiraa kamiiti?
6	Muxannoo isiin mala ulfa ittisuu ammayyaa fi tajaajila karoora maatii argachuu dandessanin walqabatee jiruu irratii mee haamari'annu?	f. Waa`ee argama/ maalumaa mala Karoora maatii akkamitti beekuu dandeessan? Maddi odeefanno keesanii osoo ibsame? g. Tajaajila ulfa ittisuu / karoora maatii kan argachuuf ofumaa barbaadee moo nama biraatu gara tajaajiloota kanatti si geesee? Muxanoo kessan ibsaa mee? h. Tajaajila ulfa ittisuu / karoora maatii yeroo deemte marii fi simannan sif godhame akkam ture? *[yoo hirmaatan oggeessa fayyaa agarsiise*,gaaffii 07 armaan gadii sirritti gafaadhu]* i. Waa'e madda oddeffanoo fayyaa, itti fayyadama fi miidhaa karoora maatii /ulfa ittisu eenyuurra akka argattan ibsaa?
7	Waa'e muxannoo tajaajila ulfa ittisuu/karoora maatii	Ilaalcha oggeessa fayyaa yeroo dowwannaa qooradhaa;

	yeroo barbaadanii ogessoota fayyaa yookiin HEF waliin dabarsitan maal akka fakaatu mee haamari'anuu? [yaadachisa gafataaf: waa`ee calqabbii fi itti fufsiisa gafaachuuf yaadadhu]	e. Tajaajila ulfa ittisuu/karoora maatii argachuuf barbaade ofii keetin marii ogessa waliin jalqabdee tanaan taatesa ibsii mee? Ogeessotni fayyaa haala kamiin sisimatan ykn deebii kennan? f. Yoo ogeessotni fayyaa marii fayadamaa mala karoora maati isiin jalqabsiisan tanaan mee mariin kessan haala kamiin adeemsiftan? g. Yoo gaafi gafateeta ta`ee oggeesotni gaaffii keef haala kamiin deebii akka sif kennan ibsii? h. Waan gaaffii sitti ta`an hunduu oggeessa fayyaattin akka feedhi keeti sif deebi`eera? i. Mee tajaajila karoora maatii/ ulfa ittisuu itti fufiinsaan argachuuf yeroo deddebi`a turte sana beellama fi hordooffii irraatti haala si mudatee ibsii?
8	Amma dubartoota Mala ulfa ittisuu ammayyaa fayyadama kessa 1 yookiin 2 afeeruun barbaada, isaanis Seena isaanii yeroo qoricha ulfa ittisuu fayyadamuu calqabdanii hamma ammaatti nuti himan barbaana.	e. Ulfa addan fageessuu yookiin ulfa murteessuuf maaltu si kakkase? Ibsii? f. Ulfa addan fageessuu murtee Calqaba haala kamiin murteesite yookiin dabarsitee? g. Dhimma akkasi abbaa manaa keef akkamiiti kaaste? Yoo jiraate? Deebii fi ga`een isa maal ture? Nuu ibsuu dandeesu? h. Mala karoora maati ammayyaa amma fayadamtuu kana akkamitti filatee? Ga`een tajaajila kennitoota maal ture? HEF?
9	Mala ulfa ittisuu ammayyaa yeeroo amma faayadama jirtuu kana waan atii hin yaadin si mudatee jiraa? Yoo jiraate Rakkoo sana haala kamiin furte /fuurattan/?	d. Filannoo mala barbaadee argaachuu walqabatee? e. Rakkoo yookiin miidhaa cinaa? f. Rakkoo atii itti hin yaadin si mudatee sana haala kamiin dura dhaabate?
III	Sadarkaa nama lama olii	
10	Namootni isiinitti dhiyaatan, itti fayyadama Mala ulfa ittisuu ammayyaa hammam deeggaruu, ykn balaalefatu? Mee dhimma knaarati haamaria'nuu?	e. Namooni dhimma kanaratii shoora qaban enyuu faa'a? f. Duub-deebiin isaan sif kennan maal fakkata? Deeggarsaa kennuu fi kennuu dhiisuu isaanii haala kamiin ibsu dandeessa? g. Kan deeggaruu fi hin deeggare eenyuu? h. Waa`ee ilaalcha namoota kana maaltu sitti dhaga`ama?
11	Waa`ee karoora maatii fi ulfa ittisuu keessatti namootni baayee barbaachisoo ta`an kan dubartootni wajjiin mar`atan eenyuu fa`adha jette yaada? maaliif? akkamitti?	Iccitii kakaasuu: • Abbaa fi haadha • hiriyoota • oggeessaa fayyaa • geggessitoota hawaasaa • abboota amantaa • miseensa waldaalee/dhaabbata hawaasaa hunda`e namootni kun maaliif baayee barbaachisaa akka ta`an qoti/adda baasi
12	Abbaan manaa fi haatii manaa hawaasa keessaatti waa'e baayina daa`immaa barbaadanii murteessuu, dhaloota	d. Dubaartootni yeroo hundumaa waa`ee dhaloota daa`imma addan faggeessu yookiin baayina maatii barbaadanii murteessuu, fi itti fayyadamaa Mala ulfa ittisuu ammayyaa abbaa warraa isaanii

	daa`imma addan faggeessu, fi Mala ulfa ittisuu ammayyaa tti faayadamuu keessatti hammam akka waliin mari`atan ibsaa mee?	waliin marii ni godhu? Eeyyee yoo ta`ee, akkamitti? Lakkii yoo ta`ee immoo, maaliif? e. Naano kessaniti Murteen waa`ee itti fayyadama Mala ulfa ittisuu ammayyaa haala kamiin murta`aa? f. Muxxaannoo dubartoota eeyyamaa abbaa manaa isaani malee qorichaa ulfaa ittisuutti fayyadaman kan hawaasaa kana keessa jiraatan muxxaannoo isaanii haa mar`iaanuu? Abbaan warraa gocha sanaf deebii akkamii kenne? Kun maaliif ta`ee jette yaada?
Fedhii hin gutamiin		
Sababa Fedhii hin gutamiin: kanatti aanee waa`ee sababoota dubartootni heeruman ulfa hin barbaachifnee ittisuuf fedhii osoo qabataanii mala ulfa ittisuu ammayyaatti hin fayyadamnee mar`ianna. Amma mee waa`ee dubartoota ulfa dhaabuu barbaadan yookiin ulfa yeroo biraatti dabarsuu barbaadan, garuu, yeroo ammaa qorichoota ulfa ittisaan kan hin faayyadamnee haa mari`anuu.. “Dubaartootni akkasii mala ulfa ittisuu ammaayyaaf fedhii hin gutamiin (*unmet need) qabu. Hubannoon dubartoota akkasii Bulchiinsa sagantaa karoora maatii baayina garee kutaa hawaasaa barbaachisoof odeeffaannoo kenna: dubartoota karoora maatii fayyadamuu barbaadan (waggaa dhaloota dheeressuu/ daa`umsa dhaabu) garuu itti hin fayyadamnee (ulfa`uu kan danda`an)*.		
13	Akka yaada keetii, dubaartootni heeruman yoo xiqqatee waggaa lamaaf ulfa yeroo biraatti dabarsuu barbaadan yookiin daa`imma godhaachuu kan hin barbaannee Mala ulfa ittisuu ammayyaa hinfayyadamnee sababootni gufuu ta`an maalii dha? Ibsa irrati kenaa?	h. Haali rakkoo argaminsa sagantaa karoora maatii ammam dubartooni osoo ulfa ittisuuf fedhii qaban mala karoora maati ammaya akka hinfadamanee taasisa? Ibsi? i. Gahee haanqina odeeffannoo fi gorsa oggeessootan kennamu dubartooni osoo uulfa itiisuuf fedhii qabatan mala karoora maati ammaya hinfayadaminiif qabuu maali? akkamitti? j. Sadarkaan Daandeetti murtee kennuu dubartoota haala kamiin dubartooni osoo uulfa itiisuuf fedhii qabatan mala karoora maati ammaya akka hinfayadaminiif danquu danda’a? Ibsaa mee? k. Mee gahee sodaan miidhaa cinaa qoorsa karoora maati irra dhuufu akka duubartooni heeruman osoo uulfa itiisuuf fedhii qabataniis mala karoora maati ammaya hinfayadaminiif qabuu mariiadhu? akkamitti? l. Haali odeeffannoo dogoggoraa, olooli dhugaa hintaa’nee fi haasaan durii dubartooni heeruman osoo uulfa itiisuuf fedhii qabataniis mala karoora maati ammaya fayadamuu irra daangessan maalfa’a? akkamitti? m. Mormiin abbaa warraa dubartooni heeruman osoo uulfa itiisuuf fedhii qabataniis mala karoora maati ammaya fayadamuu irra doorku akkamiti ibsamaa? n. Haala Dhiibba hawaasaa (fkn., sababa amantaa, fanfaansuu (stigma)) dubartooni heeruman osoo uulfa itiisuuf fedhii qabataniis mala karoora maati ammaya fayadamuu irra doorku akkamiti ibsamaa?
IV	Sadarkaa hawaasaa	
14	Akka ati ilaalteetti itti faayadamni mala ulfa	f. Akka ilaalcha keetiti haali ittifayadama mala ulfa ittisuu ammaayyaa hawaasaa kan keessaa maal

	ittisuu ammaayyaa hawaasaa kana keessa kan dubartoota heerumanii hammam ta`aa jette yaada? Dubaartoota baayeen ni faayyadamu moo hin faayyadaman jette yaada? Amala dubaartoota mala ulfa ittisuu ammaayyaa fayyadamanii fi hin faayyadamnee haa mar`ianuu.	akka fakaatu ibsaa? Dubartooni ni faayyadamuu jette yaada? Hammamtaa (proportion)? g. Amaloota dubartoota hawaasa kana keessatti argamanii kan yeroo baayee Mala ulfa ittisuu ammaayyaa fudhatanii fi itti faayyadaman maalii dha? *(Gaaffii icciitii kakastuu: kan heerumtee? Kan baratte? Hojii amma hojjecha jirtu/ dubaartii hojii qabdu?* h. Amaloota ijoo dubartoota kan Mala ulfa ittisuu ammaayyaa hin fudhanne fi itti hin fayyadamne maalii dha? i. Itti fayyadama tajaajila Mala ulfa ittisuu ammaayyaa ilaalchisee jijjiramni gara fulduraatti adeema jiru jiraa? Jijjiramaa lakkofsaan gama Mala ulfa ittisuu ammaayyaa waggaa 4 yookiin 5 darbanitti mul`atan ibsi? j. Hawaasaa kana keessaatti itti fayyadama mala ulfa ittisuu ammaayyaa jijjiramni haala mijeessitoota maalii jette yaada?
15	Waa`ee itti faayyadama Mala ulfa ittisuu ammayyaa irraatti hawaasni, namootni ollaa kee jiraatani fi ati akka amaantii keetii yeroo baayee maal jedhu/jette yaada?	e. Ilaalcha abboota amaanta/miseensa waldaalee/garee wal-walee haala kamiin arguudhaan/dhaga`uudhaan hubata? Itti fayyadama sana ni deeggaruu moo hin deeggaran? Maaliif? Itti fayyadama mala ulfa ittisuu ammaayyaa haala akkamii keessatti deggaruu yookiin hin deeggaran? f. Hawaasaa kana keessatti malli ulfa ittisuu baayee fudhatama yookiin fudhatamaa hin taanee ni jira? Isa kamii dha? Maaliif g. Dubartootni mala ulfa ittisuu ammaayyaa fayyadaman garee hawaasaa keessaatti ni jajjabeefamuu moo adda baasuudhaan miidhaan isaan irra gaha? akkamitti?
16	Akka yaada keetitti, tajaajila karoora maatii dhaabbata kana keessaatti argaachuf dubartootni yeroo baayee akka guufu guddaatti kan ilaalan maalii dha? Guufuuwwan kunis akkamitti bira gahamuu/furamuu danda`ama?	yaadachiisuu, yoo barbaachisee: f. Fageenya/jiraachuu waan tokko (fkn., sa`aatii, tajaajila argachuuf yeroo itti fudhatu, jiraachuu tajaajila kenna/oggeessa yookiin ilaalcha) g. Bu`uurralee misoomaa (e.g.kophummaa, tajaajila uummataaf kennamuu) h. Hanqina odeeffannoo, hanqina meeshaalee maxxansaa dabalatee i. Gatii (dhiyeessi/kafaalti dabalata) j. Dhimma Hawaas-aadaa (fkn. Haasaa durii, gam tokkof loogu, saala hojjeetoota dhaabbataa tokko keessa hojjetaan, dhorgaa amantaa)
17	Mala ulfa ittisuu ammayyaa irratti Dubbii dhugaa irratti hin hundoofne, odeeffannoo doggogoraa qabaachuu fi beekaa odeeffannoo dodoggoraa kennuu wal qabatee mee marii haa gaggesinu. Odeeffannon soba /kan dhugaa hin taane hawaasicha	e. Haasa akka Mala ulfa ittisuu ammayyaa nama maseensa? f. Kiniiniin garaa keessatti? g. Kan ciqqilee irra galuu wajjin yoo du`aan cubbuu dha? h. Luuppiin gadaameessaa garaa keessaatti dhokaata? i. Yeroo du'an qaamni/janaaza isaani hindhiqamu? kkf

	keessatti kan beekamoo ta`an muraasa irratti marii yoo geggeesine maal fakkata?	
18	Tajaajilaa karoora maatii/ ulfa ittisuu argachuuf aadaan ykn amantaan/ haala mijeessitoota /danqa ittisuu danda`uu irratti marii gochuu dandeenya?	e. Dhimma aadaan fi amantaan danqa/ittisuu ta`u ibsi fi f. Sadarkaa haala mijeessitoota sadarkaa aadaa fi amantaa (lachu)? g. Danqawwan (ittistoota) kannen haala kamiin mo`achuun/sirreesuun danda`ama?
19	Akka yaada keetitti, itti fayyadamaa Mala ulfa ittisuu ammayyaa guddisuuf dubartootni eeruman maal gochuu qabu? Dubartootni Mala ulfa ittisuu ammayyaa fayyadamuu barbadanii garuu hin fayyadamnee Mala ulfa ittisuu ammayyaa akka fayyadamaniif tooftaan ati hojiirra ooluu qaba jettu maali?	d. Ijaarsaa daandeetti tajaajila kennitoota fi dhaabbilee fayyaa? Hordooffii ? meeshaalee ? dhiyyeessi? e. Akkaataa kenninsaa tajaajilaa? Socho`aa fi oleegala? dhuunfaa? f. Mala ulfa ittisuu ammayyaa ol guuddisuuf geggeessaa siyaasaa fi miseensa hawaasaa dhibbaa uumuu danda`uu hirmaachiisuu? Akkamii fi Maaliif? h. Aadaa, Amaantii fi Bartee koorniyaa (hojii dhiiraf dubaraa, baayina maatii irratti yaada boodatti hafa) bira gahuuf tarsiimoo oddeeffannoo? akkamitti?
Xumura Ammaa gara xumuraa marii garee xiyyeeffanoo keenya xumurutti jira. Yaadannoo fi qabxiilee ijoo yeroo marii garee xiyyeeffanoo keenya keessatti isin kaaftan muraasa isiniif haa dubbisu……. Yaada dabalataa yookiin yaadni sirra`uu qabu jiraa? Yaada, ilaalcha fi yeroo keessaan wan nuf qoodanif guddan isin galatteffanna, oddeefannoo isin nuf laatan sagantaa kaaroora maatii Ikoo Naano Bale fi Ikooriijinii biroo foyyeessu keessaatti faayida gudda qaba. Kutaa kana osoo hin xumuriin dura yaada fi gaaffii dabalataa qabduu? Galatooma!		

ANNEXURE 12: Key-informant discussion guide

PARTICIPANTS: HEALTH EXTENSION WORKERS (SERVICE PROVIDERS)

Introduction to the interview session

My name is _____ (Interviewer/research assistant). We are conducting a study entitled “Modern contraceptive use and unmet needs amongst married women in Bale Ecoregion, Ethiopia”. Dear participants, you are invited to participate in the mentioned study which is being conducted by Semere Sileshi Belda (for the fulfilment of PhD in Public Health in the Department of Health Studies, University of South Africa) under the supervision of Professor BL DOLAMO.

The study has got Ethical certificate (Ref number: REC-012714-039 (NHERC)) from the University of South Africa and permission to collect these data was also granted from Oromia Regional Health Bureau, Bale and West Arsi Zonal Health Departments (see copies of ethics certificate and permission letters).

Dear participants, here are copies of participant information sheet for you to read and get information about the study purpose, how and why you participate in the study, risks and benefits due to participation, level of confidentiality of information, the right of having to withdraw from the study or not to respond to some of the study questions listed in the interview guide, and security of the collected information.

The reason you were selected for this interview is solely because you are service provider/ health extension worker in_____ Kebele, _____ Woreda located in the study area of our study. We like to get your opinion and ideas about the issue of family planning, modern contraceptives service provision, and related opinions so that, we can better understand the issue and learn ways and made appropriate strategy recommendations to improve the access to information and service utilization and decrease unmet needs for modern contraceptive in Bale Eco-region, Ethiopia.

May you please read to the detailed information provided in the participant information sheet? You can ask any question or request for further explanation for anything you did not understand very well. Thank you for taking time out of your schedule. Participation in this interview may take approximately 1-1.5 hours’, at most. **We will voice record the interview** and take notes to capture and retrieve relevant information that you may raise in the interview.

By having all the information, you got from the reading in the participant information sheet, may you please give us your informed consent by signing in the consent form given to you?

No, [___] I do not Agree to participate in the Key-informant Interview ⟹ Allow her not to participate.

Yes, [____] I agree to participate in the Key-informant Interview and to the recording of the interview and have received a signed copy of the informed consent agreement.

⇓

Participant Signature……Date……

Participant code ……..……..

Researcher's Name & Surname: Semere Sileshi Belda

Researcher's signature……..…..Date…….

Research assistant Name and Surname: ……

Research assistant signature……..…..Date…….

Start by explaining the ground rules as follows:

Before we start, I would like to remind you that there is no right or wrong answers in this interview. We are interested in knowing what you think, so please feel free to be frank and to share your point of view. It is very important that we hear your opinion, thoughts and suggestions on the points raised by the questions given in the discussion guide below.

INTERVIEW GUIDE FOR HEALTH EXTENSION WORKERS

Background characteristics of the participant

S.No	Background Characteristics	Categories/ Choice	Remark
1	Age of participant	_____ years	
2	Gender/ Sex	Female----1	
3	Profession	HEW-------1	
4	Number of Service years	_____ years	
5	Health Facility Name		
6	Number of co-staffs that provide FP service		
7	Woreda		
8	Kebele		

9	Agro-ecologic cluster and GPS location of the interview	Highland [___] (N_____E_____Alt_____)	
		Mid-alt [___] (N_____E_____Alt_____)	
		Lowland [___] (N_____E_____Alt_____)	
10	Interviewer Initials		
11	Date of interview	____/____/___	

S.No	Main question for discussion	Probing and follow up questions
01	What services are available at the health facility you serve in?	Prompts, if needed: a. Family planning (FP) b. Male reproductive health (RH) c. Prevention of mother-to-child transmission (PMTCT) d. Maternal and child health (MCH) e. Youth RH f. HIV and AIDS services g. Other
02	What Modern Contraceptive methods are available at this facility?	a. Methods available (Put sign "X" Infront of available methods) • [__] Male condom • [__] Female condom • [__] Oral contraceptive • [__] Injectable • [__] Implant • [__] Intrauterine device (IUD) • [__] Male sterilization • [__] Female sterilization • [__] Fertility awareness/standard days method (SDM) • [__] Education on lactational amenorrhea method (LAM)
03	What is the most used method? Why do you think is that?	Why is that method so commonly chosen (e.g., What do you think (explain) the role of: • Only method availability? • Privacy to use the method? • Myths/misperceptions regarding other methods? • Provider preference to the method? • Recommendation from friends/family, • Cost related?
04	Tell us about the number and adequacy of staff providing FP services and discuss about the training you and your staff received on FP?	a. How do you describe the number and adequacy staff to handle daily client flow and needs? b. Explain training you or your co-workers received in the following areas? Basic FP training? Individual and couples counselling? Client screening? Client Referral? Long-acting method (Implant insertion and removal? IUD insertion and removal?)

		Infection prevention? Gender sensitivity (Male involvement? Youth-friendly services? FP Integration? Logistics/commodity management? c. How frequent are refresher courses/in-service FP trainings? What do these trainings cover? d. Are the quality, scope, and frequency of FP trainings adequate? If not, how could they be improved? In what areas do providers need additional training?
05	Explain the availability and status of FP guidelines and job-aids used in counsel clients? What type of job aids (e.g., screening checklists) do providers use to help identify who should/should not use certain modern contraceptive methods?	a. How do you explain job aids usefulness for client-provider interaction? Do you think they address all the clients' needs (and individual situations)? b. Explain availability and use of up-to-date national service delivery guidelines or other such reference materials on-site? (Ask to see what is available.) c. Discuss the state by which you access to resource persons or senior professional to consult or for help?
06	Tell us about the target service user served by the health facility you work at? Is it accessible to all? Are there other FP provision modalities other than facility-based approach? What are these modalities?	a. Discuss the accessible ness of FP service to people in the catchment area? How long do most people travel to reach here for FP service? b. How do women access family planning and contraceptive services in your community and service modalities? *Government institutions? HP? HCs? Hospitals? Private clinics? Outreach?* c. Explain about service provision to *special segment of the population including men*? If so, what are the challenges? What works well to involve men? d. What should you recommend improving accessibility of FP to the hard-to-reach community members and areas?
07	If a client requests or needs a FP service that staff here cannot provide, can you refer her/him elsewhere? What and where?	a. If so, how often do providers at this facility refer clients? For what services you refer them? Do you refer for long acting? Implanon removal? IUDs? b. If not referred, why? (e.g., no institutional arrangements, not in protocols/ job function, all services available)?
08	Discuss how is FP service integrated? Do MCM integrated with other Maternal health services? Do all women who come for other Maternity services get counselling on MCM? If not why?	a. MCH services with potential FP clients • Antenatal care? • Delivery care? • Postabortion care? • Postpartum care? • PMTCT? • Sexually transmitted infection (STI) services? • Child immunization and well-baby visits b. If not integrated for clients who seek the above services, Why? What are the challenges of integration?

		c. What should be done to decrease missed opportunities through integrating with the above services?
09	Tell us about the supervision related to FP service you receive from woreda and zonal level? Do you think supervisions are adequate? How? Discuss challenges related to supervision on FP?	a. Discuss any supervision you got from the MOH district, Zonal or regional level in the previous 6 months? b. How are FP service utilization supervised? c. Discuss how availability of supplies supervised and refilled? d. Discuss how FP demand generation activities supervised? e. Tell us your opinion whether these supervisions address issues or challenges of effective FP service provision?
10	Tell us about the availability or shortages (stockout) of FP commodities and supplies in your facility. How do you describe the regular availability, resupply and stockouts of FP commodities, equipment, and supplies in your facility?	a. Discuss the regular availability, resupply and logistics management system of necessary commodities, equipment, and supplies you need to provide the FP services sought by your clients? b. Tell us any stock-outs of certain methods (and/or equipment, supplies) occurred within the last three months? If so, why do you think this is happening? c. What do you lack most often (e.g., methods; equipment related to specific methods; infection prevention supplies, Water supply)? d. Tell us when you request for resupply of FP commodities? How often is commodity forecasting done? For what period? e. Discuss how you know and respond when the stock level decreased to minimum level or ? About emergency order and additional stocks of supplies kept at hand until resupply?
11	Discuss how does the health facility engage the community in FP service planning? and implementation?	a. How do staff here partner with communities to address barriers to FP use? b. What are the main community health structures or partners with whom you work at the community level? Who is involved (e.g., satisfied users, community/religious leaders, chiefs, Village Committees)? c. Can you provide some examples of how the community participates in program design/ implementation/ evaluation? d. If not involved, why do you think is that? How could it be improved in the future?
12	In your opinion, what are the biggest constraints to offering MCM services at this facility? Describe them?	Prompts, if needed: a. Infrastructure (e.g., water supply, storage, privacy, electicity) b. Lack of staff capacity like trainings, education opportunity, supervision c. Lack of resources for needed functions or materials (e.g., commodities, supplies, materials)

		d. Low staff satisfaction, motivation, retention, absenteeism; tardiness; recognition; salary; housing e. Lack of Printed materials (e.g., SBCC materials, guidelines, job aids) f. Client load and access (e.g., hours, wait times) g. Cost (including supplies)/fees h. Sociocultural issues (e.g., myths, biases, staff gender, religious, traditions)
13	In your opinion, what are the main constraints that hinder married women who want to post pone pregnancy for at least two years or who do not want more children from using modern contraceptive methods? How can these challenges better be addressed?	Probe if needed: o. Problems of accessibility FP program? Explain? p. Lack of communication and no counselling by trained provider? How? q. Gender imbalance and women decision-making ability? r. Fear of side effects? How? s. Misinformation and Myths? Could you explain some? t. Husband opposition? u. Social pressure (e.g., religious reasons, stigma)?
14	Do you think clients are generally reluctant or uncomfortable when you approach them with FP education or services? Why do you think is that?	a. If so, what do you think *causes this reluctance* (e.g., method biases, myths/misconceptions, spousal/ family opposition, cost)? b. How typical is this behaviour in the community? Discuss? How do you respond?
15	In your opinion, what do clients see as their biggest constraints to accessing FP services at this facility? Discuss? How do these constraints be addressed?	Prompts, if needed: k. Distance and/or access (e.g., hours, waiting times, provider availability or attitude) l. Infrastructure (e.g., privacy, conveniences) m. Lack of information, including lack of (appropriate) printed materials n. Cost (including supplies)/fees o. Sociocultural issues (e.g., myths, biases, sex of staff, religious prohibition)
16	Could you discuss religious or cultural barriers of accessing family planning/ contraceptive services?	i. Describe religious and cultural issues being barriers and j. How can these barriers be overcome?
17	What are the religious or cultural level facilitators towards better accessing family planning/ contraceptive services?	a. Describe religious and cultural level facilitators of FP service access and use?
18	In your opinion, how do you perceive the level	a. Do you think political leaders are contributing their stake? How?

	of political commitment to and local leadership on FP promotion and MCM use?	b. How do state heads of government and other officials' public speech and favour towards FP service use? c. How frequently and in what way they advocate FP (e.g., public speeches, radio/TV broadcasts)? d. If not, why? (Political opposition? Religious considerations? Lack of interest?)
19	Discuss the existing FP behavioural change communication strategies used to promote MCM use? Are the strategies adequate, participatory and effective? Why?	a. What are the strengths and limitations of the current FP social and behavioural change communication strategies? b. How do you perceive the alignment of the current strategies with the target socio-cultural barriers? How? Why not? c. Discuss level of involvement of influential community members in the social and behavioural change strategies? Why? How?
20	In your opinion, what strategies do you recommend supporting women with unmet need better use MCM?	Explanations and opinions on below listed issues: g. Capacity of service providers and institutions? Supervisions? Equipment? Supplies? h. Service provision modalities? Mobile and outreach? Private? i. Involvement of influential community members and political leaders in promoting MCM? How and Why? j. Communications strategies to address cultural, religious and gender norms (e.g., roles of men and women, traditional ideas of ideal family size)? How?
Is there anything you want to add before closing our conversation? We have finalized the interview and thank you for participating!		

ANNEXURE 13: Key-informant discussion guide (local language)

Hirmaattoota: Hojjeetoota Ekisteenshiinii Fayyaa (Tajaajila kennitoota)

Seensa yeroo /hinnata gaaffii

Maqaan koo _____ (nama gaaffii gafaatu; gargaara qo`annoo). Nuyi mata duree “Fayyadama karoora maatii ammayyaa fi fedhii hin guutamnee dubartoota abbaa warraa qaban naannoo Ikko Baalee, Itoophiyaa” jedhamuu irratti qorannoo adeemsisa jira. Kabajama hirmaata, isinis qorannoo Obbo Sammaraa Silaashii Baldaa (Barataa digrii Sadaffaa (PHD) kan Fayyaa Hawaasaa dipaartimeentii Fayyaa) Yunivaarsitii Afriikaa kibbatti piroofeseraa BL DOLAMO`N hogganamuu/deggaramuu garee qo’annoo keenyaa taatanii filatamtanitu.

Qorannoon kun ragaa sonaa kan argate yoo ta`u (xalayaa lakkofsaa: REC-012714-039 (NHERC) Yuunivaarsitii Afriikaa Kibbaa fi ragaa qorannoo kanaaf barbaachisuu funanuudhaaf immoo Biiroo Fayyaa Oromiyaa,Waajjiraa Eegumsaa Fayyaa Godina Baalee fi Arsii Lixaa irraa kan argate dha (gara-galcha ragaa sonaa fi xalayaa eeyyamaa armaan gadiitti ilaali).

Kabajamoo hirmaatu gaafif deebi oogeyyiin, kun koppii waraqaa hirmaatan dubbifatuu yookiin haala mijeessaan isiniif dubbisuu (dubbisuu kan hin dandeenyef) yoo ta`u waa`ee qorannoo kana irratti kaayyoo qoronichaa hubaachuu, Faayidaa fi miidhaa qoronichaa beekuu, Iccitii eeguu, mirga yeroo barbaadanitti addan kutu yookiin gaaffilee qorannoo qajeelfama marii kana keessaatti tarreffaman gaaffii deebisuu hin barbaadne deebisuufis hin dirqamtan fi nagenyumman oddeeffanno nuf kennitan eegama ta’uu isaa ibsaa.

Bakka qorannoon kun itti adeemsifaamuu aanaa_____ganda_____keessaati sababa atii hoojatootu/oogeyii Eekstensinii Fayyaa bakka waan buutuuf qofa marii kana keessaatti qooda fudhata/hirmataa taatee filatamte. Waa`ee karooraa maatii, qorichoota ammayyaa ulfa ittisaan, fi yaadoota kana fakkatan irraatti yaadni isin nuf laatanii fi ilaalcha keessaan dhimmicha gad fageenyaan akka hubanuu, tarsiimoo sirrii ta`ee bocuudhaan/qopheessudhaan waliin gahisaa odeeffannoo, itti fayyadama tajaajila foyyeessuu, fi dubartoota qorichaa ulfa ittisan fayyadamuu barbadanii garuu hin fayyadamneef gad xiqqeesuu keessaatti shoora olaanaa waan taphatuuf yaada keessan akka nuf laatan kabajaan isin gafanaa.

Waraqaa oodefanno kana sirritti dubbisuudhaan yookiin dhaggeeffachuudhaan (sagalee olkaaseen siniif dubbisa) oddeeffanoo nuf kennu dandeessu. Wanti isinif hin galee yookiin marii keessatti isin rakkisee yoo jiraate yeroo kamiyyuu gafachuu ni dandeessuu. Yeroo fi sagantaa qabdaan irraa hir`iftanii marii kana irraatti hirmaachuuf eeyyamamoo waan taataniif guddaan isin galatteffadha. Mariin kun tilmaaman saa`aatii 1- 1.5 fudhata. Marii keenyaa yeroo adeemsiifnuus yaadootni/oddeeffannoo barbaachisoon isin af-gaaffii keessaatti kaaftan akka nu jala hin harcaanee fi deebifnee itti fayyadamuuf akka nuf toluutti warabbii sagalee fi yaadannoo qabacha adeemna.

Odeffannoo kana hunda argachuudhaan, waa`ee qo`anicha dubbisa keenya dura keesatti waan argateef/hubateef walii galtee fedhii irratti hundaa'een qo'annaa kana irratti feedhii keetiin hirmaachu kee mallattoo keen armaan gadiitti na mirkanneesitaa?

Lakkii, [___] marii kana keessatti hirmaachhuf fedhii hin qabuu ➡ Isa/Isheen akka hin hirmaneef eeyyamiifi

Eeyyee, [____] marii kana keessatti hirmaachuf fedhii fi warabbii sagaleef eeyamamoo waanan ta`eef walii galtee fedhii irratti hundaa'een mallattoo kiyyaan nan mirkaneessa.

⬇

Maallattoo hirmaataa……. Guyyaa……

Koodii hirmaataa……..…….……..

Maqaa qo`aataa fi abbaa: …….. Sammaraa Silashii Beldaa

Mallattoo qo`aataa ……..….. Guyyaa ……

Maqaa gargaara/tu qoranoo …….

Mallattoo qo`aataa ……..….. Guyyaa ……

Qajeelfama gaafannoo kan Hojjeetoota Ekisteenshinii Fayyaa

Amaloota seensa hirmaataa

T/L	Amaloota seensa	Kutaa/filaannoo	Yaada
1	Umrii hirmaataa	_____ (Waggaadhaan)	
2	Koorniyaa/ saala	Dubaara _____1	
3	Ogummaa hojii	HEF _____1	
4	Waggaa tajaajilaa lakkoofsan	_____ (Waggaadhaan)	
5	Maqaa dhaabbata faayyaa		
6	Baayina namoota dhaabbaticha keessaatti tajaajila karoora maatii kennan	_____ (Lakkofsa ogeeyii)	
7	Aanaa		
8	Ganda		
9	Agro-ecologic strata (GPS information of FGD location)	Olka`insa olaanaa (N_____E_____Alt_____)	
		Olka`insa Giddu Galeessaa (N_____E_____Alt_____)	
		Olka`insa Gad Aanaa (N_____E_____Alt_____)	
10	Maqaa nama gaaffii gafaatu		
11	Guyyaa gaafannoo	_____/_____/_____	

S.No	Gaaffilee ijoo marii	Gaaffiile kakkastuu fi hordooffii
01	Dhaabbata fayyaa atii tajaajiltu keessatti tajaajilootni argaman kamii fa'aa? Ibsii	Yaadachiisuu, yoo barbaachisee: h. Karoora maatii (FP) i. Fayyaa walhormaata dhiira (RH) j. Daddarbiinsa haadha gara daa`immaa ittisuu (PMTCT) k. Fayyaa Haadhoolii fi Daa`immaani (MCH) l. Fayyaa wal hormaata dargaggoo m. Tajaajilaa HIV fi AIDS n. Kan biro
02	Dhaabbata fayyaa kana keessatti malootni ulfa ittisuu ammaayyaa kan argamaan maal fa`a?	b. Maloota jiran (mala jiru fulduraatti mallattoo"X" godhi) • [__] kondoomii dhiiraa • [__] kondoomii dubaraa • [__] kiniinii liqimfamuu • [__] lime/marfee • [__] ciqilee keessa kan galu • [__] gadameessa keessa kan galu (IUD) • [__] maseensuu dhiira • [__] maseensuu dubaraa • [__] Hubaannoo /Mala Guyyaa Qulqullina lakaawudhan (SDM) • [__] barumsaa mala harmaa hosiisuu (LAM)
03	Malli karoora maati baayinaan itti fayyadamamuu kamii dha? Kun maaliif ta`e jette yaada?	c. Maalii sun maaliif caalchisee filaatama? (Sababidhan armaan gadii haagam takka kanaaf taphata? Ibsi • Argamiinsa kana qoofa ta'uusa? • Iccitii eguuf waan mijatuuf?

		• Haasaa durii malooota birootif ilaalcha/hubaanna dogoggoora qabaach? • Loogii ykn Fedhii tajaajila kennitootan? • Yaada hiriyaa/maatiidhaan? • Sababbi gatii tajaajila biro argachutiin walqabatu?
04	Tajaajila karoora maatii kennuuf ogeessoota gahaa fi baayee qabaachuu ilaalchisee nuti himi, akkasumas leenjii ati fi hiriyootni kee waliin hojjetan karoora maatii irraatti fudhatan nuti himi?	e. Lakkofsa ogeyii dhaabata kee fi Fedhii fi yaa`insa maamiloota guyyaa guyyaatti keessumeesuuf akkamiti ibsitaa? f. Leenjii karoora maatii bu`uura (Basic FP training), gorsa haadha manaa fi abbaa manaa fi dhuunfaa(Individual and couples counselling), calaallii maamilaa (Client screening) fi sirna olergiinsa maamilaa (Client Referral) irraatti ati fi hiriyootni kee waliin hojjetan leenjii fudhatan ibsi? Mala Karoora maatii yeroo dheeraa (Implaantii galchuu fi baasuu? luuppii galchuu fi baasuu?) ittisaa dhibee? Gender sensitivity (hirmaacisummaa dhiiraa? Tajaajila waliinii dargaggoota (YFS? qindoomina karoora maatii? Bulchiinsa karoora tajaajilaa fi hojii/meeshaalee? g. Leenjiin haroomsa tajaajila karoora maatii irraatti kan kennamu hangam tutureeti? Qabiyyeen leenjii kana maal maal qabata? h. Qulqullinni, daangaa fi deddeebiin leenjicha gaha dha? Yoo gaha miti ta`e, akkamitti foyya`uu danda`a? Tajaajila kennitootni leenjii dabalataa maalirraatti yoo kennameef barbaadu?
05	qajeelfamni fi gargaartuun hojii (job-aids) karooraa maatii maamilaa tajaajilaaf dhufee gorsuuf kan ooluu bakka hojii keeti argamu fi sadarkaasa ibsii mee? Gosa gargaartuu hoji (fkn: cheekliistii calaaltuu), kan tajajilaa kennitootni dubaartii mala ulfa baasuu ammaayyaa fayyadamanii fi hin fayyadamnee ittin adda baasan?	d. Faayida Gargaartuun hojii walitti dhufeenya maamilaa waliin godhamuf ibsii mee? Meshaaleen kuniin, fedhii maamiltoota hundaa xiyyefano kessa galchuurati maal fakaata? (haaloota dhuunfaa)? e. Haala argamamuu fi sadarkaa qaajeelfamootni tajaajila dahumsa yookiin meeshaalee wabii bakka hojii haroomfaman nuuf ibsii? *(wanta jiru ilaaluudhaaf gafaadhu)* f. Haala deegarsa atii ogeyii olaano irra yaroo barbaaddeti argachuutiin walqabatee jiruu nuuf ibsii mee?
06	Waa'e tajaajila argatoota dhaabbata fayyaa ati hojjetuu keessatti fayadamoo ta'an nuuf ibsii mee? Haala tajaajillicha namni hundi	e. Haala salphatii tajaajila karoora maati argachuurati maal fakaata? Namooni baayeen, tajaajila karoora maatii argaachuuf hagam takka deemu? f. Tajaajila mala ulfa ittisuu fi karoora maatii hawaasni naannoo kee haala

	salphaatti argachuuratii maal fakaata? Tajaajila karrora maati karaa gara biroo (dhaabbata fayyaan ala) argama tanaan ibsii mee?	akkamin kenninsa tajaajila itti argatu? Dhaabbataa mootummaa? Keella fayyaa? Buufata Fayyaa? Hospitaalaa? Kiliinikaa dhuunfaa? Ooleegala? g. Haala keeninsa tajaajila karoora maati qaamolee hawaasa deegarsa barbaadan xiyyefatu, abooti (warra dhiiroo) dabalatee keenuratii maal fakaattu? Rakkoollen isiin mudatan maal fa`a? Dhiroota hirmaachisuuf haali gaariin/mija'aan maal fa`a? h. Naannoolee fi hawaasaa tajaajilli karoora maatii bira gahuun hin danda`amnee bira gahuuf maaltu godhamuu qaba jette yaada?
07	Waa'e tajaajila karoora maatii oggeessi fayyaa dhaabata fayyaa ketti kennuu hin dandeenye maamilli yoo barbaade/dhiyeesse, bakka biratti erguuratiin jiruu ibsii? Maalii fi eessaatti?	c. Ol ergiinsi yoo jiraate, dhaabbata fayyaa kana keessatti yeroo meeqa maamilaaf olergiinsi godhamaa? Tajaajila akkamittif olergita? Tajaajila karoora maatii yeroo dheeraaf ol ni ergitaa? Kan irree irra galu bafaachuuf/ kan gadameessa keessa galuf? Ibsa keeni d. Yoo ol hin ergaman ta`ee, maaliif? (fkn. Haala mija'a dhaabbile jiraachu dhabu? Pirootokoliin keesaa hinjiruu? Tajaajila hundumaa asiiti argamuu?
08	Qindoominni tajaajila karoora maatii akkamii dha? Qindoomina mala ulfa ittisuu ammaayyaa tajaajila fayyaa haadhoolii biroo waliin waliin qabu ibsii? Dubartootni tajaajila Haadhumaa biroof dhufan hundi gorsa mala ulfa ittisuu amaayyaa irraatti ni argatuu? Yoo hin argatan ta`ee. Maaliif?	a. Maamiltoota karoora maati dubartoota tajaajila fayyaa haadhoolii fi daa`immaani asii gadii ibsaman keessa hooruuf caraa jiruu ibsii mee? • Tajaajilamtoota kunuunsa dahumsaa duraa? • Tajaajilamtoota dahumsaa? • Kunuunsa ulfa baasuu booda? • Kunuunsa dahumsaa boodaa? • Daddarbiinsa haadha gara daa`immaa ittisuu (PMTCT)? • Tajaajiloota dhibee dadarboo nafa saala? • Talaallii daa`imam fi daawwanaa daa`imma nagaa qabeessa? b. Tajaajilootni armaan olii maamilaa tajaajilaa barbaaduuf kan hin qindoomne yoo ta`ee, maaliif? Qindoomina dhabuuf rakkooleen jiran maalii dha? c. Tajaajiloota armaan olii karaa qindoomina qabuun carraalee dhabamaan hirisuuf maaltu hojjetame?
09	Hordooffii fi deeggarsa isin tajaajila karoora maatii irraatti qaamoota godinaa fi aanaa irraa argatan nati himi?	f. Haala hoordofii fi to'anno ji`a 6 darban keessaatti tajaajila karoora maatii irraatti argattan naaf ibsii me? g. Hoordofii fi to'annon itti fayyadamni tajajilaa karrora maati irratii goodhamu maal fakaata?

	Deeggarsi godhamee gahaa dha jette yaada? Haagam takka? Karoora maatii irraatti deeggarsa kennuf rakkoon jiruu maalii?'	h. Hoordofii fi to'annon jiraachuu fi dhiyeessi yeroo murta`aa keessaati guutuf godhamuu akkamitti ibsitaa? i. Hoordofii fi to'annon hojiidhan fedhii karoora maati uumuuf hoojatammu akkamitti ibsitaa? j. Hordoffii/to`annoon godhamuu kun rakkoolee ykn guufudhan tajaajila karoora maati milkessuf dhorkan furuu dandahaa jatte yaada?
10	Waa`ee ittifufinsaan jiraachuu, haanqina fi dhumuu meeshaalee karoora maatii nuti himi mee? Dhaabbata fayyaa keessaan keessatti haala itifuufinsaan argamuu, isiinif dhiyaachu ykn tassa dhumuu meeshaaleen, mi`a fi dhiyeessin karoora maatii akkamiti ibsitaa?	f. Haala ittifufinsaan jiraachu, dhiyaachu fi sirna bulchinsa meeshaalee dhiyeessi fi mi`oota barbaachisoo tajaajila karoora maatii maamilli fayyadamuu barbaduu irrati yaada kee nuufkeni? g. Ji`oota sadan darbaan keessaatti hanqinni maloota muraasa (meeshaalee, dhiyeessii) si mudaatee nuuf ibsii? Haanqini maaliif sin mudaate jette yaadaa? h. Yeroo baayee kan isiin haanqatu ykn dhumu gosoota dhiyessi kam fa'a? Maaliif? (Fkn. Maloota karrora maati ammaya kessa? Meeshaalee addaatti mala tokko irraatti xiyyeffate? Dhiyyeesi meeshaalee ittisaa dhibee dadarbaa? Madda bishaani dhaabatichaaf?) i. Dhiyeessin dabalataa yoomi fi akkamitti gafataa? Jiraachu fi dhumuu dhiyyeesi haala kamiin to'ata? Meeshaalee yeroo meeqa keessaatti gara fulduraatti tilmaamama ykn Yeero meqaaf gaafatamaa? j. Haanga meshaaleen/dhiyeessin sadarkaa gadiianaa ykn raawachuuf ta'uu isaa akkamitti beekta akkasumaas haala kamiin dubdeebii kenitaa? Waa'e gaafi dhiyessi attatamaa fi haanga dhiyessi dabalataa ofegannof oluu haarkati qabaachu nuuf ibsii mee?
11	Karooraa fi Hojiirra oolmaa tajaajila karoora maatii keessaatti, dhaabbatni fayyaa haala kamiin hawaasaa qooda fudhaachisa?	e. Tataafi gufuudhan tajaajila karoora maati safisaa sakaalan qoolachuuf goodhamu kessa hirmaanan qama hawaasa maal fakaata? Hirmanaan gahaa dha? Akkamiti? f. Caasaa ijoon caasaa fayyaa hawaasaa yookiin qaamoleen kan ati waliin Sadarkaa hawaasaatti hojjetu eenyu fa`a? Eenyuutu keessatti hirmaata *(Fkn: Tajaajilamtoota itti qufinsa qabu? Maanguddo fi abbota amaanta? Geeggesitoota ykn caasaa gandaa? Koreewwan gandaa?)* g. Fakkenya muraasa hawaasni hirmanna sagantaa karoorrsu/ saxaxuu (design),

		rawwii /gamaaggama sagantaa keessatti qabu nuf ibsii mee? h. Hawaasni hirmaana hin godhan yoo ta`e, maaliif ta`e jette yaada? Gara fulduraatti akkamitti foyya`u danda`aa?
12	Akka yaada keetii, tajaajila mala ulfa ittisuu ammayyaa dhaabbata kana keessaatti safisaan keenuuf guufudhan gurguddaan maalfa? Ibsii?	Yaadachisuu, yoo barbaachiseef: p. Bu`uurralee misoomaa (e.g. dhiyeessi biishaanii, kuufama, haanqina bakka/iddo tajaajila kophummaa, madda ibsa dhabuu) q. Hanqina daandeetii ogeessoota (Fkn: leenjii, carraa barnoota, dandeeti hordoffii) r. Hanqina qabeenyaa ykn meeshaalee hojiif barbaachisan dhabuu *(Fkn: meeshaalee shaqaxa, dhiyeessi, meeshaalee)* s. Kakaumsii fi itti qufinsi ogeessa gad aanaa ta`u, hamilee dhabuu, bakka ka'uu, hojiirra hafu, barfachuu, sirna beekamti, mindaa fi mana jireenya dhabuu kkf t. Haanqina meeshaalee maxxaansa bakka hojii (Fkn: Meeshaalee odeffaannoo jijjirama amala hawaasaa (SBCC), qajeelfamoota, gargaartuu hojii) u. Baayina maamila fi safisaan bira gahuu dhabuu (Fkn: sa`aatii deemsa, yeroo turtii dhaabile kessa tajaajila argachuun dura) v. Gatii (qaalainsa dhiyeessi)/kafaltii garagara w. Barmaatilee, aadaa, ilaalcha fi soodaa bu'ura hinqabnee sababchuu (Fkn: oduu durii dhugaa irra fagaate, odefanno dogongoraa, koorniyaa ogeesa tajaajila kenu, amantaa sababefachuu, barmaatilee boodati haafo ta'n)
13	Akka yaada keetii, sababooni dubaartootni heeruman osoo ulfa yoo xiqqatee waggaa lamaaf dabarsuu feedhan yookiin daa`imma godhaachuu hin barbaannee, mala ulfa ittisuu ammayyaa akka hinfayyadamnee gufuu itti ta`an maalii dha? Sababootni gufuu ta`aan kunnen haala kamiin bira gahamuu danda`ama?	Yoo barbaachisee gaafficha kakkasii: v. Rakkoo argaminsa sagantaa karoora maatiitin walqabatu? Ibsi? w. Hanqina odeeffannoo fi gorsa oggeessootan kennamu? akkamitti? x. Daandeetti murtee kennuu dubartootatu fi loogi koorniyaa isaan danqee? y. Sodaa miidhaa cinaa ti? akkamitti? z. Odeeffannoo dogoggoraa kennuu fi haasaa durii? Muraasa isaanii ibsu dandeessa? aa. Mormii abbaa warraa? bb. Dhiibba hawaasaa (Fkn: sababa amantaa, soda balaalefana hiriyoota fi maatii)

14	Maamilli walumaagalatti yeroo ati tajaajilaa yookiin barumsa karooraa maatii dhiyyeesituuf kan itti hin toole yookiin goorsicha hoojitii hikuuf fedhii dhaban akkanitii ibsitaa? Kuun maaliif ta`e jette yaada?	c. Sababooni fedhii dhabuu fi rincicummaa kanaaf saaxilan maalii jette yaada? (Fkn: loogii malaa, haasa dhugaa irratti hin hundoofne/hubannoo dogoggora, mormii dhiirsa ykn niitii / maatii, qaalainsa gatii)? d. Namooni amala akkanaa qaban hawaasa kana kessa hagam takka ta'uu? Ibsa itti keeni? Namoota amala akkasi qaban gargaaruf maal godhaa jirtaa?
15	Akka yaada keetii, dhaabbata fayyaa kana keessatti tajaajila karoora maatii argaachuuf maamilli akka gufuu guddaatti ilaalu maalfa? Ibsa keeni? Gufuuwwan kunneen haala kamiin bira gahamuu/furmata argachuu danda`a?	Yaadachiisuu, yoo barbaachisee: a. Fageenya/jiraachuu dhaabbilee fayaa (Fkn: sa`aatii, tajaajila argachuuf yeroo itti fudhatu, jiraachuu tajaajila kenna/oggeessa yookiin ilaalcha tajaajila saniif qaban) b. Bu`uurralee misoomaa (Fkn: kutaa tajaajila kophummaa, tajaajila mijataa dhabuu?) c. Hanqina odeeffannoo, hanqina meeshaalee maxxansaa dabalatee d. Gatii (dhiyeessi/kafaalti dabalata) e. Dhiphaa Hawaas-aadaa (Fkn: Haasaa dhugaa hin taane, gam tokkof loogu, saala hojjeetoota dhaabbataa tokko keessa hojjetaan, dhorgaa amantaa)
16	Tajaajila mala ulfa ittisuu /karoora maatii argaachuuf danqaa yookiin gufuudhan aadaa ykn amantaadhan walhidhatan nu ibsu dandeessaa?	k. Dhimma aadaa fi amantaan danqaa/ittisaa ta`u ibsi l. Danqawwan (ittistoota) kanneen haala kamiin mo`achuun/sirreesuun danda`ama? Ibsii?
17	Tajaajila mala ulfa ittisuu /karoora maatii argachuuf toolan ykn haala mijeesitoota / aadaa ykn amantaadhan walhidhatan nu ibsii mee?	a. Sadarkaa haala mijeessitoota sadarkaa aadaa fi amantaa (lachuu)?
18	Akka yaada keetii, sadarkaa kutannoo ogantoota siyaasaa fi geggesiootni naannoo itti fayadama karooraa maatii guddisuuf gumaachan maal fakaata?	a. Ogantoota siyaasaa gahee ofii gumaacha jiruu jatte yaada? Akkamitti? b. Gageesitooni mootumoota fi kannen biroo waa`ee karoora maatii hawaasaa fi haala mijaataadhaan dubbachuu ykn labsuurati maal fakaatu? c. Yoo gageesitooni karoora maati labsan ta`ee, yeroo meeqaaf fi haala akkamiin? *(Fkn: haasaa hawaassaa, tamsaasa raadiyoonii/TV)?* d. Yoo hinduubatan ykn hinlabssan ta`ee, maaliif? *(Fkn: mormii siyaasaa? Fedhii dhabuu?)*
19	Itti fayyadama mala ulfa ittisuu ammayyaa foyyeessuuf tarsiimoowwan barbachisoo ta`an	d. Cimini fi hanqinni tarsiimoo odeeffannoo jijjirama amala fi hawaasummaa (SBCC) Karooraa maatii yeroo ammaa maal fa`a?

	odeffaannoo jijirama amala karooraa maatii maal akka fakaatan ibsa keeni mee? Bal'inni fi hirmaachisumaan tarsimoowan kaniin maal fakaata? Bu`aa yaadamee fiduu danda`a? Maaliif?	e. Walsiimanaa tarsimoowwan yeroo ammaa fi gufuuwwan hawaas-aadaa akkamiti ilaalata? Akkamitti? Maaliif hin simane? f. Hirmaanaan miseensoota hawaasaa bebbekamoo tarsimoo kana kessati maal akka fakaatu ibsa keni? Maaliif? Akkamitti?
20	Akka yaada keetii, tarsiimoon furmaata dubartoota mala ulfa ittisuu ammayyaa fayyadamuu barbadanii garuu hin fayyadamnee (ykn feedhii hingutamnee qaban) deeggaruuf daran fayaduu maal fa'a jatee yaada? Ibsii?	Yaada fi Ibsa qabxilee assi gadii irrati Gaafadhuu: k. Ijaarsaa daandeetti tajaajila kennitoota fi dhaabbilee fayyaa? Hordooffii? Meeshaalee? Dhiyyeessi jabessu dhaan walqabate? l. Akkaataa kenninsaa tajaajilaa dubartoota kaniniif mijatee ta'ee hoordoofu? *(Fkn: Socho`aa fi oleegala? dhuunfaa?)* m. Mala ulfa ittisuu ammayyaa ol guuddisuuf geggeessaa siyaasaa fi miseensa hawaasaa dhibbaa uumuu danda`uu hirmaachiisuu? Akkamii fi Maaliif? n. Aadaa, Amaantii fi Bartee koorniyaa (hojii dhiiraf dubaraa, baayina maatii irratti yaada boodatti hafa) bira gahuuf tarsiimoo oddeeffannoo qabaachu? Akkamitti?
	Osoo marii keenyaa hin xumuriin dura wanti ati dabaltuu jiraa? Gaaffii keenyaa waan xumureef guddaan isin galateeffanna!	

ANNEXURE 14: Side-by-side joint display table of quantitative and qualitative data integration

Themes	Socio-Ecological Levels			
	Sub-themes	Quantitative findings	Qualitative findings (Qualitative result)	Interpretation of findings
		Intrapersonal level barriers and enablers		
1. Intrapersonal level aspect - T1.	1.1 Cognitive ability	Higher odds of MCM use among women with good knowledge (AOR=1.486; 95%CI: 1.014-2.176) compared to those women who had poor knowledge.	"I do not follow what people talk, but as the science and government arranged for us, we use the methods …". (FGD - CNUML - G5; MLNU04); A 30-year-old MCM user from the midland stratum indicated in her discussion that, those women who attended school or have better knowledge and who are optimistic have a better ability to decide on contraceptive use by themselves despite their husband's opposition; "The well-educated women and one who better known …the benefits can have the ability to decide themselves for the benefit of themselves and their children and usually waste less time while arguing with a resistant husband". (FGD - CUML - G1; MLCU06)	Knowledge of the women regarding MCM and types of MCM was one of the factors that determine MCM use. Despite being afraid of side effects women with a better level of knowledge could compare the benefits with the risks and get convinced to start the use of MCM. Misinformation and misunderstanding of MCM due to lack of appropriate knowledge hinder women from using MCM.
		The odds of MCM use are higher among women with primary education (AOR=1.798; 95%CI: 1.134-2.852) and secondary and above education (AOR=2.066; 95%CI: 1.166-	"Those educated women use MCM more than those who have no education…". (I - HEWLL – 09) "The educated ones understand the benefits and try it [contraceptive use]	The effect of women's education could be further interpreted that, apart from their enhanced comprehension, women with higher education also tend to possess a positive

		3.660) compared to those women did not attend school.	practically. But those rural illiterate women are reluctant to use CM even after attending a family planning education…". (FDG - CUHL - G2; HLMCMUO3); "Those educated people including health extension workers and health professionals have a good view and can change the minds of those insisting on contraceptive use." (FGD – NUHL – G3; HLNU06)	attitude towards MCM. This positive mindset enables them to navigate societal pressures with confidence and make informed decisions about their reproductive health. Moreover, the impact of education on contraceptive use extends beyond individual women. Educated women often become advocates within their communities, spreading awareness and challenging misconceptions surrounding MCM.
		Women having secondary or postsecondary level of education had a 39.1% less odds of having unmet need for MCM (AOR=0.599; 95%CI: 0.363-0.987) compared to women who had not attended school.	Working on girls' education is key to the achievement of expected change, including adult education. Women attending adult education get access to appropriate information including FP and proper health behavior. Those not educated always lag. We suggest if equally focused on women's education, it will improve CMU (FGD - CUML - G1; MLCU06)	Increasing girls' education and engaging married women in an adult literacy programme were key enablers for the improved use of MCM and to decrease the unmet need for MCM in the study area.
	1.2 Self determination	Only 507(52.9%) of the participants were fully autonomous in household decision-making. The other 155(16.2%) and 156(16.3%) participate only in three and two of the decision-making dimensions respectively, and nearly one in ten of the women 93(9.7%)	"I was confused about children and the care they need. I decided myself and took an MCM. I was bothered about how to fulfil their need; I wished to space them and reached the decision myself." (FDG - CUHL - G2; HLMCMU01) "It is a woman who comes out of her house and shares an idea with other women in her social group who could know…	Women who could independently decide on the use of a range of household assets were more likely to use MCM regardless of the support or influence of other people in their surroundings including their husbands. Women with the freedom to participate in different social or development events could get appropriate

		participate in none of the four-household decision-making dimensions	accept and use MCM. Those women who know how to manage their household income are more likely to exercise FP". (FGD - CUML - G1; MLCU01) "… we advise those women who are married under 18 years not to become pregnant soon, but due to lack of knowledge and experience, they do not accept the use of MCM. Some of them do not decide by themselves, they also fear the side effects of the methods…". (I - HEWHL – 08)	knowledge and be able to make decisions on the use of health services like MCM.
		Employed women were 1.6 times more likely to use MCM compared to non-employed women. The odds of having an unmet need for MCM among women who were employed was 0.537 indicating a 46.3% less risk compared to those unemployed women.	"I work petty trade and face difficulty during market days to work while carrying a small baby, then I decided to use a method,… that is why women who have some jobs are more likely to use". (FGD – CULL – G4; LLCU01)	As women who have jobs need freedom of movement they tend to use MCM methods. This could indicate the importance of economic empowerment in enabling married women to have control over their own reproductive choices. As women become more economically independent they will have the ability to access and afford health services, as well as the confidence to make decisions about their own bodies.
2. Interpersonal level aspects - T2	Interpersonal level barriers and enablers			
	2.1 Interpersonal Communications	The study found that only 537(56.0%) of the respondent discussed MCM use with their husband in the last 12 months.	"Yes, I have used the modern and I used also through agreement, agreement with my husband … just having an agreement with my husband can help to prevent pregnancy…"	When there was good couple discussion and agreement women took MCM regardless of opposition by other people in the neighbourhood:

			(FGD - CULL - G3; LLCU02) “First I discussed with my husband and started to use.” (FDG - CUHL - G2; HLMCMU02)	
		Those women who discussed contraceptives among peer groups (AOR=0.691; 95%CI: 0.480-0.995) and women having a membership in a community-based organization (AOR=0.666; 95%CI: 0.460-0.965) were less likely to have an unmet need for MCM	“Communication on the importance of spacing children’s age on the family, society, and the environment in general in a form of dialogue among husbands, elders and religious leaders could bring a behaviour change in FP”. (I - HEWML – 01)	Interpersonal communications among different segments of the community were believed to be prominent factors in improving the utilization of MCM in the study population. Encouraging discussions about family planning within couples, peer groups, and extended family networks can help dispel misconceptions and alleviate the influence of negative opinions.
	2.2 Psychosocial pressures	Opposition from husbands was one of the most commonly (21.7%) reported reasons for non-use of MCM.	“the husband continued to follow up on his wife’s menstrual cycle, but she started using a contraceptive method by getting advice from HEWs, later he noticed that she did not conceive and started to quarrel with her and accused her of her parents, he also blamed those fellow friends who together visited the health facility with his wife and very much confronted” (FDG - CUHL - G2) “in fact, our parents never support our MCM use at the beginning. They complain that it is the will of God who grows a child, they say that they get too many children without any problem and that is the way they expect us to do ...” (FGD - CULL - G3; LLCU02)	Dialogue among spouses, elders, and religious leaders about the value of spacing children's ages for the health of the family, for society, and for the environment, in general, could result in a change in decision to use MCM by women who wish to postpone or limit childbirth.

	2.3 Psychosocial support	The odds of MCM use were higher among those women with perceived partner support to MCM use (AOR=13.528; 95%CI: 7.812-23.425) compared to those women with a perceived partner does not support MCM use. The odds of unmet need for MCM were less among women whose partner supports MCM use (AOR=0.689; 95%CI: 0.481-0.987).	"Nowadays, men understand the advantage of their wives' active participation in productive work, as the cost of living is increasing from time to time, people start to realize the consequences of a large family and the difference between too many children and having few children well-spaced apart. This made some husbands interested in contraceptive use by their wives though some others still had no interest to MCM use." (FGD - CULL - G3; LLCU06) They [Religious leaders] advised the importance of spacing pregnancy at least until the previous baby breastfeeds for two complete years. They explained to us . . . spacing for some periods is not forbidden per the Shariah law. Therefore, it is we who pretend to be the Shariha, but that is not the case. There are wives of Sheks who use MCM… due to his [husband] support…". (FDG – CUHL HLMCMUO2)	Some husbands initially disagree with their wives' use of MCM, but after observing real changes in their wife's health, their children's well-being, and the condition of their homes because of the spacing of delivery, they change their thoughts. After observing these women working hard and improving their homes by spacing out pregnancies, some husbands wish their wives would use MCM.
3. Community level aspects - T3	Community-level barriers and enablers			
	3.1 Misconceptions	More than half of the participants (52.3%) live in a cluster where a smaller number of other	"People talk about a woman who died of any illness while implant contraceptive inside her arm, shouts each night while inside the grave	There is widespread misconception in society that contraceptive use is a sin and women who die with a contraceptive method inside their

		women with positive perceptions of contraceptive use	…as God punishes her due to her contraceptive in her body". (FGD - CNUHL - G6; HLNU02) "Taking 3 doses of contraceptive injection [Depo provera injection] is considered as the killing of one person … a woman who received three doses of injectable contraceptive [equal to nine-month pregnancy prevention] is considered as if she killed one person …. It is equivalent to one person's life because a person is born within nine months of pregnancy that is the reason". (FGD - CNUHL - G6; HLNU06)	body get punished by God. Misconceptions of using some form of contraception considered as grave violations of religious tenets are among the prominent barriers to MCM use in the study area
	3.2 Social norms	The odds of unmet need were higher among women who live in a cluster where less proportion of other women use MCM. Only 325(33.9%) of the women live in a low attitude against wife beating cluster (a cluster where most of the other women in a neighbourhood support the justification given for wife beating)	"In my view, it is not many, only a few women are using MCM. We can see this in the age of the children they carry on their backs and pull with their hands. If we assess now many children are closely spaced and affected nutritional status". (FDG - CUHL - G2; HLMCMUO2) "… due to fear of criticism by other people, we usually do not want to tell our secret, we just know each other secretly but do not openly announce this in public. … stigmatization and shamefulness are the main fear." (FGD - CUML - G1; MLCU02) "Denying sleeping with him… This is not negotiable and she can be beaten because that is his own	Most survey participants believe that their social network members do not view their usage of MCM favourably. Most women secretly use MCM as a coping mechanism or a measure to avoid social discrimination or criticism by other people. Participants' perceptions of wife-beating or gender-based violence were used as proxies for gendered norms that may have an impact on married women's use of MCM.

			gift, which she has no right to reject". (FGD - CNUML - G5; MLNU03)	
4. Institutional level aspects – T4	Institutional-level barriers and enablers			
	4.1 Geographic accessibility	A third 330(34.4%) of the participants access the nearest health institution in more than half an hour to access MCM; The prevalence of unmet needs ranges from the smallest 10.0% in Chefedonsa kebele which is an urban kebele with better physical accessibility to a health facility, to the largest 67.9% in rural kebeles located in the remotest location where women need to travel long distance to access a health facility	"As you see the topography of the area is challenging with lots of hills and gorges where the community settled in a very dispersed way. We provide the services properly when they [community] come to the health post, however, during the rainy season they cannot come here, and the service utilization drops unless we go there [outreach program in sub villages] and provide outreach services". (I - HEWLL – 04).; "The barriers that prevent her [a Woman] from using a method while the interest, could be related to the distance of the location of the residence from the health post...". (I - HEWML – 01)	Geographic inaccessibility including, settlement status, topography or landscape was among the barriers to access to contraceptive methods in the study population. Arranging outreach programs is being used as a solution to avoid low performance by the health facilities. The magnitude of unmet need in the study population widely varies among the study clusters and differed by socio-demographic characteristics of the study participants. The distance was among the cause of unmet needs (non-use of MCM despite the evident need to avoid pregnancy) mentioned by the participants.
	4.2 Administrative accessibility	The quantitative finding found a significant proportion of 760(79.2%) of the study participants visited HF at least once in the last 12 months About 558(58.2%) of the study participants and their family members were covered	"… Inconvenience of the counselling room is one problem we had, we have only one room for all services and it [the counselling room] is not convenient and not clean for women who want privacy. There is no latrine... no water source in the health post even to wash our hands before and after performing a	Various administrative and program challenges including the closure of public facilities during weekends, poor infrastructure including counselling rooms, and lack of water supply and energy source at the nearest health facilities make it difficult for women to

		under community health insurance during the study period.	procedure… which could contribute to the risk of infection. There was no power source [electricity] to sterilize equipment". (I - HEWML – 02)	consistently use quality family planning and other health services from these facilities
	4.3 Info and counselling about MCM	Only half 178(51.0%) of the current contraceptive users were informed about all the four basic information by their contraceptive provider. Whereas nearly one in ten (9.7%) of the current contraceptive users in the study area were told none of the 4 basic contraceptive information, and another 41(11.7%), 47(13.5%) and 49(14.0%) respectively were informed only one, two and three of the four basic contraceptive information.	"By the time I started using the injection, they told me about the next appointment date. I was not told about the problems that follow the use of the injectable method. They told me it was a good method and reminded me to take the next injection on the appointment day and gave me the next appointment date on a small card, and during the next appointment, they carefully checked that card. … ". (FGD - CULL - G3; LLCU06); "They even sent me back because the person who gave the method is not available. I insisted and asked what should I do? They told me to come another day and check if she [HEW inserted the method] is available? I returned there twice without getting the service" (FDG - CUHL – G2; HLMCMUO4)	This finding indicates that nearly half of the women who contacted an FP provider and received a MCM did not obtain the optimum level of FP information from the service providers, and this suggests the need to improve the quality of family planning counselling by the service providers in the study area. Several of the women in the FGD who were utilising MCMs claimed that the information they received about the method was insufficient.
		Those women who were visited by health extension workers during the previous 12 months were less likely to have an unmet need for MCM (AOR=0.370; 95%CI: 0.262-0.522), compared to their counterparts.	"… after getting the understanding and due to the counselling we get from the health workers in the health post, our fears gradually decreased and most of us adopted the use of contraceptives. After we got information and	The presence of health extension workers can greatly improve the overall quality of care received by clients. By implementing improved communication and sensitivity training, MCM services can be more effective in meeting the

			understood the benefits of family planning, we learned the methods that help us prevent pregnancy for a longer period and the methods that prevent pregnancy for a short period". (FGD - CULL - G3; LLCU02)	needs of their clients and reducing unmet needs.
	4.4 Providers competence	The proportion of more effective long-acting reversible contraceptive methods such as IUD was insignificant accounting for 0.6% in the total method mix of MCM use in the study population	"They [HEWs] usually give simpler methods like pills and vaccinations; they are not allowed to give long methods. I am not sure if not trained about it or if the plan itself needs to give a long method from the health centre only". (FDG - CUHL - G2; HLMCMUO3) "… we insert Implanon, but we cannot remove the implant we inserted for a woman. … when a client asks for removal we send her to another health centre. This is a limitation to the service we provide because the woman we referred to another facility for removal may not come to us again for the continuation of method use or she may discontinue method use while she desires to prevent pregnancy. … Training in providing all services including removal of the implant by all HEWs could improve the use of long-acting contraceptive methods method". (I - HEWLL – 04)	This lack of competence highlights a significant barrier to providing comprehensive family planning services. Without the ability to offer and perform methods like the IUD, many clients are left with limited options that may not align with their preferences or needs. Addressing this gap in training and skills among health extension workers is crucial to ensure that clients have access to a full range of contraceptive options and can make informed decisions about their reproductive health.

	4.5 Method choice and supplies	The injectable contraceptive method was the major modern contraceptive method used by 242(25.2%) of the contraceptive users followed by the Implant method used by 68(7.1%) of the users	"... Depo, Pills, Implants and Condoms are available at the health post level. We have no IUD, but if we find a client that wants to use an IUD, we refer her to the health centre". (I - HEWLL – 04) "… sometimes supplies like Surgical gloves, Lidocaine, Syringe and alcohol stock out and women may be forced to shift from implants to short-acting methods like pills and injections due to stock out of supplies. IUDs are not available and we refer those women who need an IUD to the health centre in the nearby town, where the women may be exposed to unnecessary transportation costs and problems. But if we had a consistent supply of all methods the service can be easily accessed from this health post". (I - HEWML – 02)	Limited method choice mainly the short-acting methods, and unavailability of long-acting methods results in unnecessary referral of clients. Lack of supply and stockouts are among the problems preventing the consistent provision of all contraceptive methods with a better status for method choice. These findings suggest a need for greater availability and promotion of alternative contraceptive methods to provide more options for individuals.

5. Policies and Societal level aspects - T5	Policy/ Societal level barriers and enablers			
	5.1 Women's Empowerment	Expanding girls' and women's education, preventing early marriage, adult literacy and income generation are described as increasing self-determination, strengthening decision making power and making women more likely to use MCM.	Women's empowerment as a central policy level foundation for improved MCM use	Embed FP goals within broader women's empowerment policies and programmes; coordinate with education, gender and economic sectors to promote girls' schooling, delay marriage and support women's livelihood opportunities as long term strategies to reduce unmet need.
	5.2 Access and Service Quality	Participants call for improved infrastructure, stronger supply chains, outreach and mobile services for long-acting and permanent methods, and respectful, client-centered care to address identified gaps.	Policy and system investments in access, service quality and outreach as structural enablers of equitable uptake	Advocate for and implement policies that allocate resources to FP infrastructure, supply chains and outreach; institutionalise quality-of-care standards (including respectful care) and integrate FP indicators into routine performance monitoring at district and regional levels.
	5.3 Gatekeepers and change agents' engagement	Community experiences show that involving religious leaders, elders, community leaders, role-model women and men's groups in dialogue and training reduces fear, clarifies misconceptions and improves acceptance of MCM.	Engagement of gatekeepers and change agents as essential for transforming social and religious norms around MCM	Formalise collaboration with gatekeepers through structured programmes and forums; provide them with appropriate FP information; support them to co-facilitate community dialogues and publicly endorse birth spacing and MCM use.

	5.4 Multi-sectoral integration	Integration of FP into schools, agricultural extension, social self-help groups, VSLA groups and cooperatives broadens reach, links MCM with livelihoods and social support, and creates opportunities to address norms with men, youth and elders.	Multi-sectoral integration and collaboration as crucial societal strategies for addressing structural and normative barriers	Develop and scale multi-sectoral FP integration models with education, agriculture, social development and CSOs; use community-based organisations and savings groups as routine platforms for FP education, referral and norm-change activities, with clear roles and coordination mechanisms.

ANNEXURE 15 Strategies prioritisation matrix

Strategic pillar	Proposed strategies	Priority	Time frame	Lead actor
Pillar 1: Intrapersonal Empowerment	S1. Improve knowledge and understanding about MCM	High	0–12 months	Health Extension Workers
	S2. Promote married women's and girls' education	Medium	1–3 years	Woreda Education Office
	S3. Promote income generation and women employment	Medium	1–3 years	Women and Social Development Office
Pillar 2: Interpersonal Support	S4. Promote couple communication and joint decision-making.	High	0–12 months	Health Extension Workers with Religious Leaders
	S5. Promote men's involvement in family planning program	High	0–12 months	Woreda Health Office
	S6. Facilitate peer group discussions and communication	Medium	0–12 months	Health Extension Workers and Women's Groups
Pillar 3: Community Norms and Access	S7. Conduct social mobilization and community dialogues to reduce stigma and myths around MCM.	High	0–12 months	Woreda Health Office
	S8. Implement social and behavioural change communication	Medium	1–3 years	Zonal Health Department
	S9. Ensure community group engagement for psychosocial support to women	Medium	1–3 years	Women and Social Development Office
	S10. Involve religious leaders in FP promotion	High	0–12 months	Religious Leaders' Association
	S11. Expand access to modern contraceptive services in remote and hard-to-reach areas.	High	0–12 months	Woreda Health Office
Pillar 4: Institutional and Policy Systems	S12. Improve FP service delivery unit arrangement and functionality (infrastructure, privacy, utilities).	High	0–12 months	Primary Health Care Unit Directors
	S13. Strengthen competence of health care providers in quality FP counselling and method provision.	High	0–12 months	Zonal Health Department
	S14. Integrate FP with women's economic empowerment.	Medium	1–3 years	Women and Social Affairs
	S15. Integrate FP with education and literacy programmes.	Medium	1–3 years	Regional Education
	S16. Promote multi-sectoral integration and mainstreaming of FP into broader development programmes.	Low	3–5 years	Regional Health Bureau
	S17. Engage faith-based organisations in FP programming and implementation.	Medium	1–3 years	Faith-Based Organisations Association
	S18. Integrate FP interventions with community-based organisations (CBOs).	Medium	1–3 years	Woreda Health Office

ANNEXURE 16: Letter from the statistician

ANCHOR
CONSULTING SERVICE

Date: April 20th 2023
Ref: ACS/HR/01/2023

To whom it may concern

I, Gebrye Kefelew, hereby confirm that I have provided professional statistical support for the quantitative component of the research titled "STRATEGIES FOR ENHANCING MODERN CONTRACEPTIVE USE AMONGST MARRIED WOMEN IN BALE ECO-REGION, ETHIOPIA" conducted by Semere Sileshi Belda, in partial fulfillment of the requirements for the PhD in Public Health at the University of South Africa (UNISA).

My role was to collaborate with the researcher during:

- The selection and justification of appropriate quantitative methods and statistical tests for the quantitative data.
- Set the data analysis plan, including variable coding, data entry, selection of relevant models and quantitative data analysis using IBM SPSS 25, ensuring the accuracy and internal consistency of the results.

I confirm that the analyses were conducted to the best of my professional knowledge and according to standard statistical practice based on the data and information made available to me by the researcher. The responsibility for the final content, conclusions, and any subsequent use of the results remains with the researcher.

Sincerely,

Gebrye Kefelew
Chief Executive Officer (CEO)
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ANNEXURE 17: Letter from the technical editor

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16 February 2026

e-mail: piet.rinacoetzer@gmail.com

TO WHOM IT MAY CONCERN

STUDENT: SEMERE SILESHI BELDA

STUDENT NUMBER: 64055272

TITLE: STRATEGIES FOR ENHANCING MODERN CONTRACEPTIVE USE AMONGST MARRIED WOMEN IN BALE ECO-REGION, ETHIOPIA

This is to certify that the above thesis (except for the Annexures) has been technically edited according to Tutorial Letter MNUALLL/301/0/2026 of the Department of Health Studies, Unisa.



Mrs EC Coetzer

ANNEXURE 18: Turnitin similarity report

Similarity Report

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To Whom It May Concern,

This certificate confirms that the PhD thesis entitled **STRATEGIES FOR ENHANCING MODERN CONTRACEPTIVE USE AMONGST MARRIED WOMEN IN BALE ECO-REGION, ETHIOPIA** by **SEMERE SILESHI BELDA (student number: 64055272)** was edited by an expert English editor with a PhD. The following issues were corrected: grammar, spelling, punctuation, sentence structure, phrasing, and formatting.

Signed on behalf of NIM Editorial by:



.....

Dr N.I. Mabidi
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