A MODEL FOR CONTINUUM OF CARE FOR REDUCING MATERNAL AND NEONATAL DEATHS IN NORTH WESTERN ETHIOPIA

By

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DECLARATION

I declare that **A MODEL FOR CONTINUUM OF CARE FOR REDUCING MATERNAL AND NEONATAL DEATHS, NORTH WESTERN ETHIOPIA** is my own work and that all the sources I used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the thesis to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it for examination at UNISA for another qualification or at any other higher education institutions.

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DEDICATION

This thesis is dedicated to women and children who were killed, displaced and have been suffering due to ethnic based man-made political conflicts. This burden severely harms and aggravates the delivery of health care services, causes poor maternal and neonatal continuum of care utilisation and leads to negative results of preventable pregnancy and childbirth related complications.

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ABSTRACT

Maternal and neonatal health continuum of care (MNH CoC) is one of the recommended strategies for reducing maternal and neonatal deaths. However, its utilisation remains low in sub-Saharan Africa, including Ethiopia. The purpose of the study was to investigate the determinants of maternal and neonatal service utilisation and develop a model for continuum of care for reducing maternal and neonatal mortality in North Western Ethiopia.

A convergent mixed methods research design was used to conduct the study. For the quantitative phase, simple random sampling followed by systematic sampling was used to select a sample of 564 women who had given birth in the preceding nine months before data collection for the study. Data was collected through the use of a questionnaire. For the qualitative phase, a purposive sampling method was applied to select the study participants who were women, religious leaders, community leaders, Women's Development Army (WDA) leaders, health extension workers (HEWs), midwives, facility heads, experts, and directors, using in-depth interview tools. The quantitative data were analysed using SPSS version 27 and the qualitative data were analysed using Colaizzi's seven steps of analysis.

The overall completion of maternal and neonatal CoC services in the antenatal, childbirth and postnatal stages was 53.7%. The study showed that factors such as occupation, partner support, knowledge of the expected number of antenatal visits, knowledge of neonatal danger signs, early booking of antenatal care, comprehensive counselling and physical examination during antenatal care (ANC), and mode of delivery were significantly associated with completion of MNC CoC services. Religious influence, perceptions, customs and husbands' influence were barriers that affected the completion of MNH CoC. Furthermore, poverty, an awareness gap, workload, unwanted pregnancy, late ANC booking and poor referral care including lack of timely services resulted in discontinuation of the CoC pathways. Lack of resources such as appropriate medication, laboratory investigations, medical equipment and transportation exacerbated poor utilisation of MNH CoC.

The findings were used to develop a MNH CoC model for reducing maternal and neonatal deaths. The developed model challenges policy makers to set up programs that would facilitate action for improved and desired outcomes.

Key words: Continuum of care, barriers, maternal and neonatal health, maternal mortality, neonatal mortality, maternal and neonatal health continuum of care model

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LIST OF ABBREVIATIONS

ANC	Antenatal Care
CHX	Chlorhexidine
CoC	Continuum of Care
C-section	Caesarean Section
EPHI	Ethiopian Public Health Institute
FMoH	Federal Ministry of Health
HDA	Health Development Army
HEW	Health Extension Workers
lb	Live Births
LMICs	Lower Middle-Income Countries
MDG	Millennium Development Goal
MMR	Maternal Mortality Ratio
MNCH	Maternal Neonatal and Child Health
MNH	Maternal and Neonatal Health
MoH	Ministry of Health
PHC	Primary Health Care
PNC	Post-natal care
PPFP	Postpartum Family Planning
PWC	Pregnant Women’s Conference
SDA	Skilled Delivery Attendance
SDG	Sustainable Development Goal
TT	Tetanus Toxoid
UN	United Nations
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
WDA	Women's Development Army
WHO	World Health Organization

CHAPTER 1:
ORIENTATION TO THE STUDY

1.1 INTRODUCTION

Ethiopia, like other countries in sub-Saharan Africa, has one of the world's highest rates of maternal deaths from complications arising from pregnancy (Tesfaye, Loxton, Chojenta, Assefa & Smith 2018). The World Health Organization (WHO) confirms that an estimated 287,000 women died in 2020 following pregnancy and childbirth, of which a high proportion occurred in sub-Saharan Africa (WHO 2023). The region's maternal mortality ratio (MMR) is among the highest in the world, at 545 per 100,000 live births (lb) (WHO, UNICEF, UNFPA, World Bank Group & UNDESA/Population Division 2023:30-31). The death of a mother from maternity-related causes is a significant social and personal tragedy. In the same vein, 27 neonatal deaths per 1,000 lb due to pregnancy and birth related complications were recorded in 2019 (WHO 2020a). However, efforts to decrease maternal and neonatal mortalities remain a challenge.

In 2015, the United Nations (UN) established 17 Sustainable Development Goals (SDGs) with the aim of transforming and improving the lives of the global community. Ethiopia is one of the 193 countries that have ratified the SDGs. Through SDG 3, countries should ensure healthy lives and promote the well-being of people of all ages. SDG 3, target 1 (SDG 3.1) calls on countries to reduce global MMR to less than 70 per 100,000 lb by 2030 (Hasan, Magalhaes, Ahmed, Ahmed, Biswas, Fatima, Islam, Hossain & Mamun 2020). SDG 3.2 calls on countries to reduce neonatal mortality to at least 12 per 1,000 lb by 2030 (Gupta & Vegelin 2016). To achieve the 2030 SDG 3 targets, interventions need to be scaled up, particularly in countries with the highest burden of disease, including maternal and neonatal mortalities. The continuum of maternal and neonatal health (MNH) care has been identified as one of the key strategies to improve survival of the mother-child pair through the provision of integrated services in primary health centres, community and individual levels (Black, Levin, Walker, Chou, Liu & Temmerman 2016). The continuum of care (CoC) embraces pregnancy, childbirth, postpartum care, and level of the facility where the care is provided (Mothupi, Knight & Tabana 2020).

Interventions to strengthen the CoC have recently been discussed in relation to maternal, neonatal and child health (MNCH) (Wehrmeister, Barros, Hosseinpoor, Boerma & Victora 2020). The CoC approach identifies that safe childbirth is essential for enhancing the positive health outcomes of both the women and their neonates (Black, Levin et al 2016; Owili & Muga 2019). It is one of the essential strategies to achieve maternal and child health targets of the SDGs adopted by the international community (Hasan et al 2020). Owili and Muga (2019) argue that a fundamental change in strategy and improvement in MNH outcomes requires high coverage across the CoC as well as effective intervention measures at all levels, particularly in primary care facilities where they act as the first port of contact.

According to the study by Munos, Stanton, and Bryce (2017), the critically high impact of MNH interventions across the CoC are not currently measured through individual studies. Chou, Walker and Kanyangarara (2019) point out in their study that 86,000 maternal deaths, 0.67 million neonatal deaths, and 0.52 million stillbirths could have been avoided by 2020 in 81 low-middle income countries (LMICs) if high-quality MNH CoC interventions had been implemented but the provision of interventional care was below standard.

An Ethiopian study conducted by Emiru, Alene, and Debelew (2020) shows that the CoC completion rate was extremely low, suggesting that women had not received the maximum possible life-saving intervention from existing health facilities. Furthermore, CoC completion rates and service utilisation were influenced by various factors, which require further studies to improve interventions.

1.2 BACKGROUND TO THE RESEARCH PROBLEM

1.2.1 The source of the research problem

Being a mother and having a baby is a great joy and source of hope (WHO 2017a), but globally a high number of women dies due to preventable pregnancy and childbirth-related complications while giving birth (WHO, UNICEF, UNFPA & World Bank 2019:8). Global evidence indicates that globally maternal mortality and neonatal death progressively declined by 34.3% from 2000-2020 (WHO et al 2023:36) and by 48% from 1990-2019 (WHO 2020a:17-18), respectively, through implementing interventional strategies.

However, the mortality figures from low resourced regions are not encouraging and reduction did not meet the desired mortality targets. The highest numbers of deaths recorded were from the sub-Saharan Africa region, which accounted for approximately two thirds of global maternal deaths in 2017 (WHO et al 2019:37) and 27 neonatal deaths per 1,000 lb in 2019 (WHO 2020a) due to pregnancy and birth-related complications. Even though high maternal mortality occurred in sub-Saharan Africa in 2020, the region achieved a maternal death reduction by 44% from 1990-2015 in response to the millennium development goals (WHO, UNICEF, UNFPA, World Bank & UNPD 2015:21), by 38% from 2000-2017 (WHO et al 2019:40) and 33.1% from 2016-2020 (WHO et al 2023:37) in response to the SDGs.

The reproductive, maternal, newborn and child health interventions composite coverage index (CCI) in 64 countries reveals that not all countries will achieve CCI targets by 2030. This directly relates to the socio-demographic variables which vary from country to country where least developing countries will have lower coverage of CCI by 2030. The difference also occurs among subgroups of wealth, residence, education, and age (Hasan et al 2020:657-662).

1.2.2 Background of the research problem

Completion of CoC for mothers and neonates is linked with the time dimension connecting caregiving across the continuum of pre-pregnancy, during pregnancy, delivery, and postnatal periods for maternal and neonatal health. The place dimension indicates the linking of the various levels of home, community, and health facilities (WHO 2011). According to these approaches, there are complex and different determining factors that directly or indirectly affect the completion of CoC.

Studies show that sociodemographic variables such as age, education, residence and wealth (Hasan et al 2020), transportation, satisfaction with the health service, short travel time, health education (Atnafu, Kebede, Misganaw, Teshome, Biks, Demissie, Wolde, Gelaye, Yitayal, Ayele, Azale, Derso, Geberenedhin & Dellie 2020), timely initiation of antenatal care, birth preparedness and complication readiness, pre-pregnancy contraception utilisation, employment, planned pregnancy (Haile, Kondale, Andarge, Tunje, Fikadu & Boti 2020) and media exposure (Enos, Amoako & Doku 2021) are some of the

determinants that affect the completion of MNH CoC services. Other influences, such as health service-related factors (quality of services, availability of services, maternal-friendly services, payment to related services, referral, health workers' preference), participation in Women's Development Army (WDA) membership, Pregnant Women Conference discussion, decision making role, and societal level (cultures, religious, norms) have not been studied in depth to determine whether they have positive or negative effects for the completion of MNH CoC.

1.3 RESEARCH PROBLEM

Maternal and neonatal health remains one of the greatest global health issues of the 21st century. Globally, an estimated 800 mothers died per day in 2020 due to preventable pregnancy and birth-related complications. About 95% of maternal deaths occurred in developing countries (WHO 2023). The sub-Saharan region alone accounted for 70% of global maternal deaths (WHO et al 2023:30). Likewise, in 2019, about 2.4 million neonates died in the first month of life, accounting for 47% of all deaths among children under five years of age, and sub-Saharan countries contributed 42% of global neonatal deaths (WHO 2020a:17).

Sub-Saharan Africa is the only region globally with high lifetime risk of maternal and neonatal death. The lifetime risk of maternal death was one in 37, compared to one in 7800 in New Zealand or Australia (WHO et al 2019). According to the UN report in 2017, one in 36 infants died in sub-Sahara as compared to one in 333 in high income countries (UNICEF 2020).

Ethiopia is ranked as the fifteenth country in sub-Saharan Africa with high maternal and neonatal mortality (WHO et al 2019:7). In Ethiopia, the MMR was 953 in 2000, 880 in 2005, 635 in 2010, 399 in 2015 and 267 in 2020 per 100,000 lb (WHO et al 2023:83). Despite this apparent decline in MMR, Ethiopia has failed to achieve the Millennium Development Goal (MDG) of 267/100,000 (WHO et al. 2015). Ethiopia's neonatal mortality rate (NMR) shows no signs of declining after completion of the MDGs. The estimated NMR was 29 in 2016 and 30 per 1,000 lb in 2019 (Ethiopian Public Health Institute (EPHI) & ICF 2019), which was far from the target of 11 per 1,000 lb (FMoH 2015). The slow decline in MMR and NMR may be attributed to the inadequate use of the WHO-recommended CoC strategy to

improve health outcomes in MNH (EPHI & ICF 2019; WHO 2020a; Tsegaye, Shudura, Yoseph & Tamiso 2021).

Ethiopia endorsed the first essential health service packages in 2005 (MoH 2019). In spite of this important milestone, several studies have shown that CoC remains underutilised in this country (MoH 2019). Furthermore, recent studies confirm that complete utilisation of the continuum of maternal and neonatal health care remains very low in Ethiopia, ranging from 12.1-37.2% (Atnafu et al 2020; Emiru et al 2020; Tizazu, Sharew, Mamo, Zeru, Asefa & Amare 2021). According to the 2016 Ethiopian Demographic Health Survey (EDHS), 93% of women are still not receiving complete CoC services (Muluneh, Kassa, Syoum, Gebretsadik, Woldeyes & Tenaw 2020).

Although there is evidence that many maternal and neonatal deaths could be prevented with a follow-up system that considers and achieves effective coverage along the continuum pathways (Owili & Muga 2019; Hasan et al 2020), in Ethiopia the completion of MNH CoC services has been very low (Tizazu et al 2021). This shows that there is a significant gap in the completion of MNH CoC services and little progress has been made in improving the level of MNH CoC services. This low utilisation of continuity of care contributes to poor MNH outcomes. There have been few studies, and none specifically in the research area, to identify determinants and barriers affecting continuity of MNH CoC services in Ethiopia. Furthermore, no model of CoC to reduce maternal and neonatal mortality has been studied in Ethiopia. For this reason, only limited interventions are made regarding the completion of the MNH CoC services.

In light of the above, the researcher identified the determinants of maternal and neonatal deaths and developed a model for a CoC in the Assosa Zone in the Benishangul Gumuz Region, Ethiopia.

1.4 RESEARCH PURPOSE

The research purpose is a concise summary of the study's goal to answer why the study is being conducted and to give an overall summary of its goal (Newman & Covrig 2013:71). According to LoBiondo-Wood and Haber (2014:34), study purpose refers to determining what the investigator wants to conduct.

The purpose of this study was to investigate the determinants of maternal and neonatal service utilisation and to develop a continuum of care model for reducing maternal and neonatal mortality in Assosa Zone, North Western Ethiopia.

1.5 RESEARCH OBJECTIVES

The study had the following quantitative, qualitative and integrative objectives:

1.5.1 Quantitative phase

1. To determine and describe the magnitude of maternal and neonatal continuum of care utilisation in the Assosa Zone, North Western Ethiopia.
2. To analyse and describe the current maternal and neonatal continuum of care services in the study area.
3. To identify factors that determine utilisation of maternal and neonatal health continuum of care in the study area.

1.5.2 Qualitative phase

1. To explore and describe barriers that hinder utilisation of the maternal and neonatal continuum of care in the study area.

1.5.3 Integrative phase

1. To develop a continuum of care model for reducing maternal and neonatal mortality in the study area in North Western Ethiopia.

1.6 RESEARCH QUESTIONS

The study articulated the following main leading questions that were answered at the end of this research:

1. What is the level or magnitude of MNH CoC utilisation in Assosa Zone, North Western Ethiopia?
2. What is the quality of services in implementing the continuum of maternal and neonatal care in the study area?
3. What are the factors that determine utilisation of the MNH CoC in the context of Assosa Zone?

4. What are the barriers that hinder utilisation of the MNH CoC in the study area?
5. What would a continuum of care model for reducing maternal and neonatal mortality in North Western Ethiopia look like?

1.7 SIGNIFICANCE OF THE STUDY

According to maternal and neonatal CoC evidence, the use of all possible high impact interventions can largely prevent maternal and neonatal morbidity and mortality. Still, low coverage and quality of services are the major challenges in many LMICs (Hasan et al 2020:657-662). In Ethiopia, the use of the CoC is remarkably low (Atnafu et al 2020). The continuum of maternal and neonatal care has been influenced by complex factors (Emiru et al 2020) which require a systematic approach and proper study methods. Factors influencing maternal and neonatal CoC services operate at various levels. Current studies in Ethiopia have limitations in determining the level of maternal and neonatal CoC and determining factors not well studied in single families or individuals. Most of the evidence indicates that separate CoC and household, community, and facility level factors are not well triangulated. Even evidence of these separate CoC service studies give either individual or facility-related limitations. Addressing only one of these categories of factors is likely to present an incomplete picture for the use of the continuum of maternal and neonatal health services.

It follows that the level of maternal and neonatal CoC services and all factors affecting the service utilisation need to be analysed accurately according to their strategic relevance for developing the proposed model. This study offered an opportunity for a more complete analysis of all potential variables to answer the question “what is the level of utilisation of the MNH CoC in the study area and is the standard CoC at all phases fully implemented?” The study used different data sources and an advanced analytic technique after collecting all relevant data. The study directs the areas of interventions at different levels to improve the CoC. It further helps policy makers in designing or modifying the current standards, strategies and policies to improve the interventions.

1.8 DEFINITIONS OF TERMS

1.8.1 Definition of key concepts

Antenatal care (ANC): The routine care of pregnant women by qualified health professionals between preconception and the onset of labour to ensure the best health conditions for mother and baby during pregnancy (WHO 2016a:1). The present study identified the magnitude of ANC coverage, determining the utilisation of ANC and services that women received during each follow-up.

Continuum of care (CoC): The continuum of care for maternal and neonatal health requires access to care provided by families, communities, outpatient and/or outreach services, and clinical services during pregnancy, childbirth and postnatal periods. Saving lives depends on comprehensive, high-quality integrated service-delivery systems that span the entire continuum, with functional connections between different health care system tiers and service delivery systems so that the care given at each location and time adds to the efficiency of all the linked systems (Kerber, De Graft-Johnson, Bhutt, Okong, Starrs & Lawwn 2007). Thus, the present study identified the magnitude of the CoC services and identified the factors that determine the MNH CoC in the study area.

Maternal and neonatal health continuum of care (MNH CoC): Continuum of care is a concept involving an integrated system of care that guides and tracks women and neonates over time through a comprehensive array of health services spanning all levels of intensity of care. These are ANC1, ANC4+, skilled delivery and postnatal (neonatal and maternal) care in the recommended periods (Kerber et al 2007). The researcher critically analysed utilisation of ANC1, ANC 4+, skilled delivery and PNC services.

Maternal death: The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from intentional or incidental causes (WHO et al 2019). The present study aimed to develop a CoC model to reduce preventable maternal deaths.

Maternal mortality rate (MMRate): it is defined as the number of maternal deaths in a given period per 100,000 women of reproductive age group in the same time period (WHO et al 2019).

Maternal mortality ratio (MMR): it is defined as the number of maternal deaths during a given time period per 100, 000 lb during the same period (WHO et al 2019). The present study identified factors and barriers that affect utilisation of continuum of care and finally developed a model to tackle preventable maternal deaths and reduce the MMR.

Model: the representation of all parts (complex systems, visualising variables and relationships of the constructs) of the framework that is developed to examine the constructs of the framework. A model can be represented by words, physical material, pictorial or realistic graphs or mathematical expressions (Franscisco 2017). For the present study the model represents the CoC for reducing maternal and neonatal deaths and is symbolised by graphs and pictures.

Neonatal mortality rate (NMR): The probability of babies dying before 28 days after birth per 1,000 lb (EPHI & ICF 2019:11). The present study identified factors and barriers that affect utilisation of continuum of care and finally developed a model to tackle preventable neonatal deaths and reduce the NMR.

Postnatal care (PNC): The care provided to the mother and baby beginning immediately after the birth of the baby and extending up to six weeks (42 days) after birth. Every mother and baby should get four postnatal visits, on the first day within 24 hours, at day 3 (48-72 hours), between 7-14 days, and at six weeks (WHO 2014). The present study identified the magnitude of and factors that affect utilisation of the postnatal care in the study area.

Skilled birth attendance (SBA): The 2018 WHO definition of skilled health personnel (competent health care professionals) providing care during childbirth (often referred to as “skilled birth attendance” or SBAs) (WHO 2018). The present study determined the magnitude of skilled delivery in the study area and factors that affect skilled delivery in the context of Assosa Zone.

1.8.2 Operational definitions

Complete continuum of care (CoC): CoC is classified as complete if women report that they received at least four or more ANC visits (ANC4+) in health facilities during pregnancy, labour and child birth performed by qualified providers (nurses, midwives and/or doctors) in health centres and hospitals, and in addition received postnatal services for them and their neonates within 24 hours, 48 hours, 72 hours and within seven days. If the woman missed one of the services, the care is considered as discontinued.

Knowledge of obstetric complications: knowledge of obstetric complications from pregnancy to postnatal periods. There are three complications during pregnancy (severe headache or high blood pressure, blurred vision or convulsion, and absence or low movement of foetus). During delivery there are eight complications: prolonged labour, extreme vaginal bleeding, severe abdominal pain, delayed placental expulsion, rupture of the uterus, foetus in abnormal position, cord prolapsed/baby's hand or feet coming out first and cord around neck. Two postnatal complications are high fever and foul-smelling discharge. Based on these 13 major complications, a knowledge category index was prepared and categorised into knowledgeable or not knowledgeable.

Knowledge of neonatal complications: the major complications of neonates are poor sucking or inability to breastfeed, fever, fast breathing, difficulty of breathing, lethargy or unconsciousness or weakness, hypothermia, convulsion, umbilical infection such as redness of the cord, jaundice or yellowish discoloration of palms/soles and vomiting. A knowledge category index was prepared and categorised professionals as knowledgeable or not knowledgeable.

1.9 THEORETICAL FOUNDATION OF THE STUDY

Scientific research requires theoretical frameworks or models to guide the entire process of a study: data collection, analysis, interpretation of findings and recommendations (Kivunja 2018). This study used the Andersen model of health service utilisation (Andersen 1995), and primary health care (PHC) (WHO 1978) models as theoretical assumptions to guide the data collection, analysis, interpretation of findings and developing the CoC model.

1.9.1 Primary health care model

A primary health care model (PHC model) is defined as “essential care based on practical, scientifically sound and socially acceptable methods and technologically, made universally accessible to individuals and families in the community through their full participation and at a cost that the community and the country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination” (WHO 1978:3).

According to Rowan, Geuale, Husband and Longfield (2019), the PHC model is used to describe health care service delivery system and the behaviour of service consumers or providers. Hence, this model was used in this study to explore and describe the level of utilisation of the maternal and neonatal continuum of care in the study area from the perceptions of the mothers and providers.

The model considered the following PHC main components: the availability of services (whether the CoC is easily obtained when women need the services), accessibility (the availability of CoC services for utilisation), the affordability (can service users afford to cover CoC related costs), acceptability (whether the services are appropriate in addressing CoC needs of women in consideration of cultural, religious and other factors), and adequacy (presence of continued supplies for the continuity of maternal and neonatal care) in the study area.

Fulfilling the MNH CoC is challenging because of many contributing factors in the context of low-income African countries. The services provided along the continuum are seen as challenging in that women do not utilise the services or cannot afford to pay the costs associated with the services or service-related costs (Dahab & Sakellariou 2020). Women may not be in a position to use the recommended CoC services from the health facilities in spite of their availability, affordability and accessibility even if they want to use the services. Women widely use the services where these are accessible, available and adequate across nearby health facilities (Dominic, Ogundipe & Ogundipe 2019). For CoC utilisation, availability and accessibility of recommended services are a prerequisite for women and neonatal health so that they can get the preferred suitable services from near their place of residence. Following access and availability of services, the economic capacity of women can determine the CoC utilisation.

Adequacy is another component of PHC related to the abundance of services in terms of access, quantity and quality to meet the expectation or needs of women. In the developing regional state of Ethiopia, governmental health facilities are not widely accessible, while the quality and quantity of services and the cost of services are questionable. This study explored and identified the accessibility, availability, adequacy, affordability and acceptability of MNH CoC in the study area.

1.9.2 The Andersen health behaviour model

The Andersen Health Behaviour Model provides a framework that is used to systematically identify factors that influence whether to use or not to use the available health services (Andersen 1995). The predisposing factors, according to the Andersen model (1995), are sociocultural traits of the individual that exist before the health condition, the enabling factors that reroute the logistical aspects of obtaining services, and the need factors are the primary reason for using health services and reflect the individual's perceived health status. This study tried to identify the predisposing factors (age, residence, religious belief, ethnicity, education, marital status and employment) that hindered or facilitated the utilisation of the MNH CoC. This study also identified enabling factors such as place of residence, income status, decision-making, husband's education, husband's attitude and support from the husband, community, and the WDA in the study area. The present study attempted to identify the need factors (knowledge of maternal and neonatal complications, number of children, parity, previous complications, perceived importance of CoC service use and pregnancy intention) that affected the CoC services utilisation positively or negatively in the study area.

1.10 STRUCTURE OF THE THESIS

The thesis is structured into six chapters. These chapters interlink with each other, and the flow is maintained according to Table 1.1 below.

Table 1.1 Structure of the thesis with main components

Chapter	Title	Description under each title
1	Orientation to the study	This chapter includes an introduction, the background to the research problem, the research problem, purpose, objectives, questions, significance of the study, operational terms, theoretical foundation for the study, structure of the thesis and conclusions.
2	Related literature	This chapter includes a review of deep and brief consultation of related

Chapter	Title	Description under each title
	review	literature in relation to the topic – introduction, continuum of maternal and neonatal care, mortality trends, understanding the MNH CoC for reducing maternal and neonatal deaths, determining factors of CoC (sociodemographic factors, obstetric related factors, health service-related factors, family, community and information related factors), linkage of Andersen and PHC models to the study, interventions, strategies and policies and the conceptual framework of the study derived from the models and the literatures.
3	Research design and methodology	This part of the study provides detailed description of the research paradigm, design, study setting, sample size calculation, the population and sampling procedures, data collection, analysis procedures, rigour of the study and ethical considerations.
4	Result analysis of the data, presentation, and discussion	The study findings were analysed in accordance with the study objectives. The results are presented following the appropriate analysis methods and the results are interpreted and discussed by comparing the study findings.
5	Model development	According to the findings of the study and consultation of literature, the proposed model is presented.
6	Research summary, conclusion and recommendations	After the result analysis, interpretation and discussion, this chapter provides a summary of the significant findings, conclusions based on the results, and proposes appropriate recommendations.

1.11 CONCLUSION

The primary aim of the study is to develop a model for a continuum of care to reduce maternal and neonatal deaths in North Western Ethiopia. To formulate research objectives and questions, the investigator applied a convergent mixed methods study design to determine the magnitude of CoC utilisation and factors that determine the utilisation of CoC among women. This chapter introduces the background of the study problem, purpose, objectives, questions, significance, theoretical framework and the structure of the study. The next chapter presents a literature review related to this study.

CHAPTER 2:
LITERATURE REVIEW

2.1 INTRODUCTION

In this chapter, the researcher presents a review of literature relevant to this study. The chapter commences with presenting the concept of continuum of care (CoC), followed by a discussion of a CoC for reducing neonatal and maternal deaths globally, regionally and in the Ethiopian context. In this review, sufficient attention is given to factors determining the utilisation of services in the CoC, as well as the models and approaches that are utilised elsewhere. This chapter further presents the theoretical and conceptual framework on which this study is based.

2.2 LITERATURE SEARCH STRATEGY

The literature review for this study was preceded by a search of literature. A literature exploration is a systematic and exhaustive consultation of all types of published sources to identify an extensive range of high-quality references that are pertinent to the topic (Nayak & Singh 2015:39). Accordingly, the major data bases that were consulted include PubMed, BMC, PLOS journal, Lancet, UNISA library, UNISA websites, Elsevier, Advance in Public Health Journal, Google Scholar, Web of Science, and SAGE. In addition, international websites such as the WHO, UNICEF, the World Bank and the Ethiopian Ministry of Health were consulted.

The literature that was reviewed offered a synopsis and evaluation of the body of scientific knowledge on the specific research topic. The literature was organised to establish the relationship between different studies and their contribution to the continuum of maternal and neonatal health (MNH) services. Consequently, concepts and topics such as CoC, factors and barriers determining the utilisation of MNH CoC services were key words used to search journal articles, websites, and books in relation to this study.

2.3 THE CONCEPT OF CONTINUUM OF CARE

Continuum of care (CoC) is the approach or system that provides a comprehensive range of health care services over the time or the place dimensions to the most vulnerable individuals (Eide & Gorman 2022). CoC is a globally used concept for reducing avoidable fatalities by adopting various interventional packages along the CoC pathways in the fields of reproductive, maternal, neonatal, and child health (RMNCH) care (WHO 2016b:18). According to the WHO (2016b:17), RMNCH CoC is the care given throughout the life cycle of pre-pregnancy, during pregnancy, childbirth, the neonatal, childhood and adolescent periods at individual, community and health facility levels.

The Sustainable Development Goals (SDGs) prioritised that universal health coverage of MNH services reduce preventable maternal and neonatal deaths (UN 2015). However, evidence indicates that increased coverage of particular health care services does not ensure the prevention of maternal and neonatal deaths (Khan, Harris & Loxton 2020; Singh, Story & Moran 2016). In addition, introduction of quality intervention packages could not reduce neonatal and maternal deaths in LMICs (Chou et al 2019). Based on the gaps, integrative continuity services provision for women and their neonates along the CoC pathways have recently been emphasised (Cash-Gibson 2018; WHO 2016b:17). The central concept of the CoC assumes that the health and wellbeing of women and their neonates are closely linked and have to be managed in a unified approach because the health start of women can lead to a healthier outcome of their neonates (WHO 2016b:18). The MNH CoC emphasises that access to comprehensive, integrative, continuous and quality services throughout the continuum pathways reduces mortalities (WHO 2016b:18). Quality of continuum care provision during the critical periods ensures that women remain healthy, and their neonates have a safe developmental process (Cash-Gibson 2018; WHO 2016b:17). These integrative CoC interventions and linking the services at critical times to save the lives of mothers and neonates are recommended by different researchers (Chou et al 2019; Singh et al 2016; Sserwanja, Musaba, Mutisya, Olal & Mukunya 2022).

2.4 MATERNAL AND NEONATAL MORTALITY TRENDS

2.4.1 Global trends

Despite intensive efforts, maternal and neonatal mortality still represents a major public health challenge in the world (Lilungulu, Bintabara, Mujungu, Chiwanga, Chetto & Nassoro 2020). This is due to contributing factors such as delay in care and referral, information gaps, poor application of protocols, shortage of medication and investigation, infrastructure issues, and shortage of qualified health workers (Mahmood, Handarto, Laksana, Damayanti, Suhargono et al 2021). As a result, roughly 287,000 women worldwide died in 2020 from pregnancy- and childbirth-related preventable causes (WHO et al 2023:30). Furthermore, an estimated 95% of all maternal deaths occurred in LMICs. The report further indicates that sub-Saharan Africa and southern Asia accounted for about 87% of the estimated global maternal deaths and sub-Saharan Africa alone accounted for 70% of the global maternal deaths. Nigeria, India, the Demographic Republic of Congo and Ethiopia accounted for 47.9% of the projected global maternal deaths (WHO et al 2023:30-35).

Relatedly, the neonatal period is the most vulnerable time for neonatal survival. Globally, 2.4 million neonates died in 2020 (WHO 2022a). Sub-Saharan Africa had the highest neonatal mortality rate in 2020 of 27 deaths per 1,000 lb followed by Southern Asia with 23 deaths per 1,000 lb. A child born in sub-Saharan Africa is 10 times more likely to die in the first month than a child born in high income countries (WHO 2022a).

Globally, substantial improvement has been achieved to reduce maternal mortality in recent decades. Global maternal mortality declined by 34.3% with the average annual rate of 2.1% reduction between 2000 and 2020 (WHO et al 2023:36). Despite notable efforts for reducing maternal deaths in communities and health facilities, the progress of global reduction was slow between 2000 and 2020 and an estimated 223 maternal deaths per 100,000 lb occurred in 2020 (WHO et al 2023:36). The slow rate of reducing global maternal mortality indicates sub-standard or poor quality of MNH services delivery in the continuum pathways.

Between 2000 and 2020, the sub-region of Eastern Europe and South Asia achieved the largest percentage reduction in MMR, with a 70% and 67% reduction in maternal mortality per 100,000 lb, respectively (WHO 2023). Despite the very high MMRs, the sub-Saharan Africa region was also able to achieve a significant reduction of around 33% from 2000 to 2020 (WHO 2023). In addition, four SDG sub-regions (Eastern Africa, Central Asia, Eastern Asia, and Northern Africa) almost halved their MMRs between 2000 and 2020 and Western Europe reduced theirs by around one third. However, the MMR in least developing countries declined by just under 50% (WHO 2023). The higher fall was probably due to better data collecting, a rise in life expectancy, or a reduction in the differences between subpopulations (WHO et al 2019:26).

Maternal and neonatal mortality rates are a measure of maternal and neonatal care and the health of a community in general. Globally, rates have fallen significantly, but there is much variation in ambitious SDG reductions due to inequalities in access to quality health services, highlighting the gap between rich and poor. The MMR in low-income countries was 430 per 100,000 lb in 2020, compared to 12 per 100,000 lb in high-income countries (WHO 2023).

To achieve the 2030 SDG targets such as to reduce MMR to less than 70 per 100,000 lb (WHO 2019a:23) and NMR to less than 12 per 1,000 lb (Gupta & Vegelin 2016), there remains an urgent need to improve maternal and newborn survival on the global health and development agenda and move beyond mere survival. Currently, these global targets have not yet been attained, as evidenced in the MNH CoC services coverage achieved by each country (WHO 2021a).

2.4.2 Country and local level trends

Even though Ethiopia has attained prominent improvements in the maternal and neonatal health status, maternal (WHO et al 2019) and neonatal (Mitiku 2021) mortalities remain a serious challenge, where a significantly high proportion of women and neonates die along the MNH CoC pathways. Between 2000 and 2020, the Ethiopian MMR declined from 871 per 100,000 lb in 2000 to 267 per 100,000 in 2020 (WHO et al 2023). After Nigeria, India, and the Democratic Republic of the Congo, Ethiopia is one of the four nations with the highest burden of maternal mortality worldwide. In 2020, a predicted 10,000 maternal

deaths occurred in Ethiopia, and this accounted for 3.6% of global maternal deaths (WHO et al 2023:35). A systematic review of maternal mortality from 1980-1912 in Ethiopia indicates that abortion (31%), obstructed labour (29%), sepsis (21%), and haemorrhage (12%) were the causes of mortality in the first 20 years, while uterine rupture (36%), haemorrhage (22%), hypertension disorder of pregnancy (19%) and sepsis (13%) were major causes of maternal mortality in the final 10 years (Berhan & Berhan 2014). This high magnitude of maternal complications directly relates to neonatal morbidities and mortalities from ANC through the PNC continuum of pathways.

With continued efforts, under-five mortalities declined from 123 per 1000 lb in 2005 to 59 per 1,000 lb in 2019 in Ethiopia. However, neonatal mortality remains high, with a slight decline from 39 deaths per 1000 lb in 2000 to 33 deaths per 1000 lb in 2019 (MoH 2021). According to EDHS 2016, neonatal mortality varies across different regions; it is lowest in Addis Ababa (18 deaths per 1,000 lb) and highest in Amhara region (47 deaths per 1000 lb) (CSA & ICF 2016). The NMR in the Benishangul-Gumuz Region is 35 deaths per 1,000 lb, which is higher than the national average (CSA & ICF 2016). Several neonatal predictors influence the survival of neonatal health such as small size at birth (Tessema & Tesema 2020), prematurity (Moges, Mekango & Astatkie 2021) and large size at birth (Tessema & Tesema 2020) across the country. These disparities in mortalities and presence of different predictors indicate that there is difference in the health services coverage and sociodemographic variations (CSA & ICF 2016). The high magnitude of deaths from preventable causes suggests the presence of poor lifesaving interventions across the MNH CoC pathways. Assuring a CoC in maternal health services from ANC through PNC can improve maternal and neonatal health conditions.

2.5 AN OVERVIEW OF CONTINUUM OF CARE FOR REDUCING MATERNAL AND NEONATAL DEATHS

2.5.1 Understanding continuum of care for reducing maternal and neonatal deaths

Continuum of care (CoC) initially referred to continuity of care throughout the life cycle of adolescence, pregnancy, childbirth, postnatal and childhood periods. For this study, a narrowed scope of CoC is adopted, focusing on the continuum of care received by a

woman from skilled health workers throughout the antenatal, childbirth and postnatal periods (WHO, 2016b:17; Kerber et al 2007 cited in Mose, Haile & Timerga 2022). In the previous interventions, the services to mothers and neonates were often addressed separately by health care policies but separating the health care needs of mothers and neonates and addressing these services separately led to gaps in care (Black, Laxminarayan, Temmerman & Walker 2016).

The CoC strategy aims to connect with mothers and neonates at critical times and in strategic locations. It mainly focuses on the integrated efforts of improving care for mothers and their neonates throughout the different stages in their lives. The CoC has place and time dimensions. The place dimension connects several layers of health care sites, such as families, communities, and health institutions, whereas the time dimension connects care provision during antenatal, childbirth, and postpartum periods. The time dimension links the efforts of the interconnected continuity of maternity and neonate care services and contributes to quality services. Quality care during pregnancy is important for the mother's health and the development of the unborn child, as pregnancy is a crucial time for promoting healthy behaviour and parenting skills (Kerber et al 2007 cited in Mose et al 2022).

Mohammed, Worku and Girma (2022) highlight that high-quality antenatal care connects the woman and her family to a formal health care system, increases the likelihood of skilled birth attendants, and contributes to the health of the mother and her child. As a result, insufficient pregnancy care disrupts a vital link in the CoC, affecting both the mother and her unborn child (Kerber et al 2007; Mohammed et al 2022).

In Eastern African countries, the prevalence of home delivery is 23.68% (highest in Ethiopia – 72.5% – and lowest in Mozambique – 2.8%), and maternal and neonatal deaths usually happen at home (Regassa, Tola, Weldesenbet & Tusa 2022). These happen because of limited household income, lack of transportation options, indirect costs of transportation, information gaps in health care services, poor referral practices, and long distances to health facilities – all related to place dimensions. In addition, absence of childbirth preparation, cultural practices and beliefs, ignorance of the need for obstetric health services, poor staff knowledge and skills to provide CoC services, and poor

awareness of services are also linked to time dimensions that hinder utilisation of ANC, childbirth, and postnatal care (Kyei-Nimakoh, Carolan-Olah & McCann 2017). The CoC strategy has reduced half a million of maternal and four million of neonatal deaths (Kerber et al 2007 cited in Chaka 2022). Scaling up all interventions in the packages of maternal and neonatal health, plus folic acid before pregnancy and child health from the existing rate of coverage to 90% would avert 149,000 maternal deaths and 1,498,000 neonatal deaths, representing the impact at 2015 rates of pregnancy, birth, and mortality (Black, Laxminarayan et al 2016).

The new global target to prevent maternal and neonatal deaths requires high coverage with quality of integrated service packages along the CoC (WHO 2021a). However, the higher rates of neonatal and maternal deaths in developing counties of the world indicate disparities in accessing quality services for the mothers and their neonates between rich and poor and consequent utilisation gaps. Evidence indicates that the MMR in low-income countries was 42 times higher than in high-income countries, which was 462 versus 11 per 100,000 lb. The MMR in Ethiopia was 401 per 100,000 lb in 2017 (WHO et al 2019) and 267 per 100,000 lb in 2020 (WHO et al 2023). Death and complications occur during and following pregnancy, childbirth, and postnatal periods. Other complications may exist before pregnancy but are worsened during pregnancy, especially if not managed as part of the woman's care. Haemorrhage, obstetric labour, sepsis, preeclampsia, eclampsia, ectopic pregnancy, and rupture of the uterus are grouped under direct obstetric complications (Rubenstein, Ehrenthal, Mallinson, Bishop, Kuo, & Durkin 2020; Say, Chou, Gemmill, Tuncalp, Moller et al 2014), whereas indirect obstetric complications include anaemia, malaria, and other health conditions that a woman acquires during pregnancy and childbirth that are not directly caused by pregnancy (Say et al 2014).

Continuum of care in MNH care can be achieved through a combination of well-defined policies and strategies to improve health care services throughout the life cycle and build effective coverage (Rahman, Rahman & Haque 2021). Globally, most maternal and newborn deaths could be prevented if effective intervention measures were taken during childbirth and the first week after birth (WHO et al 2019; WHO 2020a). Reducing maternal and neonatal deaths depends on high coverage with quality of integrated service packages along the CoC. Increases in coverage suggest that countries are successfully

implementing effective reproductive, maternal, neonatal and child health policies and programmes. Failure to increase coverage is a cause of maternal and neonatal deaths (UNICEF & WHO 2017). In 81 countdown countries,[1] 95% of maternal deaths and 90% of child deaths happened because of weak attention in the completion of CoC and the presence of missed opportunities across the CoC. The differences in the median coverage of interventions highlight major missed opportunities in the countdown countries. For instance, the median coverage of competent birth attendants was 77%, while early initiation of breast feeding was significantly lower (52%) than with competent birth attendants. Likewise, the discrepancies between coverage of postpartum follow up for women (62) and babies (36%) might be easily improved by integrating postnatal care for women and babies (UNICEF & WHO 2017). In recent years in the countdown countries, most of the intervention coverage indicators which span the continuity of care from pregnancy through postnatal periods showed strong progress. The coverage increased sharply because of use of insecticide-treated nets for malaria prevention in pregnancy, pregnant women living with HIV receiving antiretroviral therapy, and postnatal care for mothers and neonates. However, indicators that did not show large increases include four or more antenatal care visits, and infant feeding behaviours such as early initiation of breastfeeding. Major gaps in the countdown countries are lower coverage from the median, presence of missed opportunities and high range of disparities. Median national coverage is below 50% for postnatal care for babies (36%) and exclusive breastfeeding (47%), ANC median coverage 62% (18-96%), skilled birth attendance 77% (20-100%) and PNC 62% (16-100%) (UNICEF & WHO 2017).

In the 81 countdown countries, even though strong progress was made in the coverage of many essential CoC interventions during the past decade, many countries are still a long way from universal coverage for most essential interventions. Furthermore, a growing body of evidence suggests that available services in many countries are of poor quality, thus

[1] A Country Countdown is a useful tool for nations to carry out their obligations and promises in terms of international campaigns to end preventable maternal, newborn and child deaths (Countdown 2023).

limiting the potential effect on maternal and neonatal outcomes. Even within countries, intervention coverage has been low in most countries and non-existent in a few countries. The other issue is the presence of weak health systems and non-health-sector drivers such as conflict which are major obstacles to delivering high-quality services and coverage to all populations (Boerma, Requejo, Victora, Amouzou, George et al 2018).

In short, to improve MNH, the CoC connects three components of maternal care, that is, antenatal care, skilled birth attendance, and postnatal care (ANC, SBA and PNC), which have been identified as core strategies to promote integrated maternal and neonatal services. The CoC strategies are simple, cost effective and require low technology intervention to cope with MNH challenges (Singh et al 2016). The CoC takes an integrated approach towards community care and clinical care, as well as towards care during the pregnancy, childbirth and postnatal stages. The CoC – supporting the health of neonates and their mothers – does not require new, separate efforts, but instead should aim for the integration and strengthening of the existing services and care packages to make them more efficient.

2.5.2 Historical trends of maternal and neonatal continuum of care

This section presents the historical trends of MNH CoC services since the colonial period. The section clearly describes the maternal and neonatal model utilised during the colonial period, its limitations, and initial adoption of PHC initiatives. The historical trends also describe and cover, in chronological order, the Alma-Ata conference, Rockefeller Foundation meeting, the Safe Motherhood Conference, the International Conference of Population and Development, MDGs, the CoC approach, and SDGs in relation to MNH services and their major declarations, strategies, commitments and achievements to improve maternal and neonatal health services.

During and after colonisation, most countries adopted western health care models characterised by advanced technology, high cost, and urbanised tertiary levels of health facilities. In this model, the majority of health facilities were created in each country's metropolitan settings, and rural women were unable to use the services owing to insufficient physical access and exorbitant travel costs. In the late 1960s, this model was found to have failed for resource limited countries and countries who were experiencing

ongoing economic and political instability (Hall & Taylor 2003). In response to these gaps, in the early 1970s community health workers were trained to reduce geographical access barriers to health care facilities (Perry, Zulliger & Rogers 2014). Such PHC initiatives were widely exercised in Cuba and China (Benyoussef & Christian 1977) to reduce incidences of communicable diseases and provision of immunisation for rural communities (Hall & Taylor 2003).

The Alma-Ata Conference was held in Kazakhstan in 1978, and 170 health leaders from across the world proclaimed that access to basic health care was a human right. The proclamation stressed that the purpose of PHC was to provide society and governments with universally accessible health care services at an affordable cost (WHO 1978). Many resource limited countries established infrastructures to improve access to basic health services, including family planning services and prenatal risk scoring to manage obstetric complications after the Alma-Ata declaration (Alexander & Keirse 1989). Even though the PHC approach represented a fundamental transition from curative to preventive health care, many national governments took time to implement the system and acknowledged its potential advantages, particularly in countries where the Western health care model had failed. Their justification was that PHC was an expensive strategy, and the costs involved with training healthcare workers and their salaries, delivery of essential medicines, and building health facilities in rural areas were impossible for many resources limited countries (Walsh & Warren 1979). In Ethiopia, for the first time, public health policy gave priority between 1970-1980 to the development of rural health facilities and control of common causes of morbidity and mortality and promotion of community participation in the health activities. Public campaigns were conducted among secondary and university students, and training of midwives and building of rural health facilities were introduced (Kloos, Etea, Degefa, Aga, Solomon et al 1987:1004-5).

In 1979, the Rockefeller Foundation meeting was conducted as an interim approach to meet the selective PHC Alma-Ata targets (Warren 1988) which were primarily concerned with the leading causes of infant and child mortality. The meeting introduced low-cost interventions such as oral rehydration, breastfeeding, vaccines, and growth monitoring, and these interventions reduced 1.3 million infant mortalities from 1985 to 1993. However, almost 12 million infants died in the same years (Hall & Taylor 2003). Despite two decades

of investment in selected PHC, preventive diseases continue to be a serious concern in resource-constrained nations (Magnussen, Ehiri & Jolly 2004).

In 1985, Rosenfield and Marine criticised the world's dedication to maternal health and said that, with the exception of family planning, all maternity and child health (MCH) initiatives concentrated solely on the health of the infants, ignoring delivery and the postnatal period. In 1987, the first international Safe Motherhood Conference was convened in Nairobi and proposed universal access to safe birth and to reduce the global maternal mortality by half by the year 2000 (Crow 2003). The safe motherhood approach criticised the MCH initiatives which gave attention to safe birth and pregnant and postpartum needs of women as an outcome but less attention to women's reproductive health concerns. Later, the International Conference on Population Development (ICDP) in Cairo in 1994 (Crow 2003) and the Fourth World Conference on Women in Beijing in 1995 (Morris 2001) advocated for access to contraception, the ability to make informed sexual fertility decisions, and the provision of optimal maternity care services during pregnancy, delivery, and postnatal periods.

The foundation of the current maternal care system of low and middle-income countries was advocated by Alma-Ata, the Safe Motherhood and ICPD declarations. The indicators or targets of maternal health services of Alma-Ata and PHC were integrated to improve the maternal wellbeing services in many countries including Ethiopia and gradually decreased maternal and neonatal mortalities. In Ethiopia the Health Extension Program (HEP) was launched in 2003 where maternal and child health coverage was low, with large disparities between rural and urban settings. The program was later adapted for pastoralist regions like Benishangul-Gumuz Region and urban settings. The deployment of two health extension workers (HEWs) per Kebele (lowest administrative unit) was intended to liaise with PHC facilities referrals, particularly in high-risk pregnancies and severe neonate diseases (FMoH 2005).

During the tenth anniversary of the Safe Motherhood Conference held in Colombo, Sri Lanka in 1997, it was emphasised that maternal mortality was reduced when every birth was attended by a specialist, doctor, nurse, or midwife (Starrs 1997). Even though the safe motherhood initiative planned to reduce global maternal mortality by half (50%) in the year

2000, the reduction was not achieved and acted as the base for policy makers to develop maternal health care policies for the next decade (Hall &Taylor 2003). In response to this, in 2000 MDGs (MDG 4 and 5) were developed to reduce global under-five child and maternal mortalities by three fourths and two thirds respectively by 2015. To reach these targets, 189 countries committed to universal access to maternal and under five children services specifically in resource limited countries (UN 2015). According to estimates of the WHO, UNICEF, UNFPA, The World Bank and United Nations Population Division, in Africa, Equatorial Guinea, Eritrea, and Rwanda, the goals of MDG 5 had been achieved by the year 2013. Some countries (Kenya, Guinea-Bissau, and Central African Republic) made insufficient progress while other countries even had a rise (South Africa, Somalia, and Zimbabwe) in maternal deaths. Many others (Ghana, Ethiopia, and Senegal) experienced a slow decline of maternal deaths (WHO, UNICEF, UNFPA, World Bank & UNPD 2014:31-45). The MDG report shows that 2.8 million neonatal deaths happened due to preterm birth complications, complications during labour and delivery, and sepsis, which could be avoided with simple, cost-effective and high-impact CoC interventions. However, analysis shows that too many neonates and mothers miss out on these key interventions (UN 2015).

During debates about women's reproductive health in 2005, the concept of CoC was presented as an alternative strategy to lower maternal and neonatal mortalities and maintains optimal maternal health (Lawn, Cousins & Zupan 2005; Van Lerberghe, Matthews, Achadi, Ancona, Campbell, Channon … Hoope-Bender & Turkmani 2014; Kerber et al 2007). The CoC was initiated as an alternative to address the gaps in the standard maternity care approach from the antenatal to postnatal periods.

Essential ANC services utilisation leads to optimal health with the likely utilisation of skilled birth attendance and postnatal care. The linkage between different steps of ANC and timely transfer of women with obstetric complications from the community to the facility has resulted in a more integrated maternal health care system along the continuum (Kerber et al 2007). To meet the SDG stated target of maternal and neonatal death reduction, the global community recommends that rapid progress is required to increase coverage for all MNH CoC services (WHO & UNICEF 2012; Singh et al 2016).

2.6 UTILISATION OF MATERNAL AND NEONATAL CONTINUUM OF CARE SERVICES

Coverage of MNH CoC is important to track the utilisation of MNH services along the continuum pathways. According to Singh et al (2016), substantial MNH CoC service coverage is essential to prevent maternal and neonatal deaths. However, there is a varied range of coverage for maternal health care among different countries. In Nepal, the first ANC visit was universally covered, but there was inadequate continuity of care across the MNH continuum. In the continuum of MNH care, only 41% of mothers completed from ANC through PNC periods with a large proportion discontinuing during childbirth (Khatri, Karkee, Durham, & Assefa 2021). Approximately 78% of MNH CoC services were completed in North American Caribbean nations. Despite the fact that many women were denied benefits, this coverage was greater than the global median coverage of MNH CoC utilisation (Singh et al 2016).

However, completion of MNH CoC services in South Asia and sub-Saharan Africa is often poor, with significant discontinuation rates at various phases of the continuum of paths. For instance, only a small percentage of mothers in South Asia (25%) and sub-Saharan Africa (14%) received all components of CoC services from the ANC through PNC periods (Singh et al 2016).

The completion of continuum of care from ANC to PNC was similarly poor in numerous LMICs (Khan et al 2020; Rahman et al 2021; Sakuma, Yasuoka, Phongluxa & Jimba 2019), including Ethiopia (Tizazu et al 2021). A scoping review undertaken by Kitila, Feyissa, Olika, and Wordofa (2022) found a decrease in service utilisation as women progressed through the CoC from antenatal to childbirth and postpartum periods, with the greatest disparity observed between childbirth and postpartum attendances in LMICs.

According to studies undertaken in Bangladesh, Nepal, Ghana, Egypt, and various regions of Ethiopia, the completion of continuity of care from ANC through postpartum care ranges from 9.7-66.0% (Atnafu et al 2020; Chalise, Chalise, Bista, Pandey & Thapa 2019; Emiru et al 2020; Haile et al 2020; Hamed, Roshdy & Sabry 2018; Khan et al 2020; Rahman et al 2021; Sakuma et al 2019; Tizazu et al 2021). According to the studies listed above, there is relatively little coverage, and the majority of dropouts occur from ANC through PNC

services. Identifying the low coverage determinants and adopting a broad view of determinants has significant benefits in forecasting both negative and positive outcomes and mitigating possible interventions in various societal situations, hence enhancing the likelihood for intervention success. In various settings, determinants are used to suggest more potential points of intervention with multiple health impacts (Hamal, Dieleman, Brouwere & Buning 2020).

2.7 DETERMINANTS OF UTILISATION OF MATERNAL AND NEONATAL CONTINUUM OF CARE IN HEALTH FACILITIES

Determinants are broadly defined as the range of behavioural, biological, socio-economic, and environmental factors (WHO 2017b; Palmer, Ismond, Rodriquez & Kaufman 2019) that influence the utilisation of MNH CoC services from health facilities. The present MNH CoC provision has emerged from an understanding of complex social, economic, and environmental conditions (WHO 2017b; Palmer et al 2019). Individual behaviours and genetics are the proximal determinants of variations (WHO 2017b) in MNH CoC services.

Diverse factors at various levels impact the continuum of care in maternal and neonatal service delivery in India, Nepal, Egypt, Uganda, and Ethiopia (Hamal et al 2020; Hamed et al 2018; Khatri et al 2021; Sserwanja et al 2022; Tizazu et al 2021). The services are influenced by health system factors such as governance, policies, laws, international regulations and actions that may not fully address the needs of women (Hamal et al 2020). In some situations, facilities may not be available, and even when facilities are available, they are not well equipped, and women have trouble getting the assistance they need (Hamal et al 2020). Accordingly, structural factors such as gender, religion, ethnicity, education, economic status, social inequalities and culture are the foremost contributors of use (Gebremedhin, Dawson & Hayen 2023; Hamal et al 2020). Similarly, the main factors for underutilisation of services are place of residence, women's age at birth, parity, and women's exposure to mass media and maternal health messages (Hamal et al 2020).

Women from disadvantaged ethnic groups, low wealth status, illiteracy, high birth order, involvement in the agricultural sector, unwanted last birth order, lack of awareness about maternal health groups and the perception that there is no female provider in Nepal underutilised or discontinued MNH CoC (Khatri et al 2021).

In Egypt, utilisation of MNH CoC services was influenced by the woman's age, education level of both partners, birth order, accessibility of services, and exposure to mass media (Hamed et al 2018). Educational status, place of residence, and exposure to newspapers and magazines influenced completion of MNH CoC services in Uganda (Sserwanja et al 2022).

In Ethiopia, the educational status of women, region, residence, socio-economic status, distance from health facility and pregnancy intention, mode of delivery, parity, and early antenatal care booking factors influenced the utilisation of MNH CoC differently across levels of the complete coverage index (Gebremedhin et al 2023).

Quality service is another determining factor for the outcome of neonatal and maternal health along the continuity of care (Banchani & Tenkorang 2020). For effective coverage and high quality maternal and neonatal healthcare during the antenatal, childbirth, and postnatal stages, there is a need for the improvement in some broader determinants (gender, women's empowerment, and others) across global, national, and sub-national societies (WHO 2021a).

In this section, determinants of MNH CoC have been broadly reviewed and categorised into sociodemographic, obstetric, health service and household and community factors that affect or facilitate the utilisation of continuity of MNH services from healthcare facilities and these factors are unpacked below.

2.7.1 Sociodemographic factors affecting maternal and neonatal continuum of care utilisation in healthcare facilities

In research, sociodemographic factors are key determinants or characteristics of a population or individual that have been essentially investigated to provide a correlated understanding of health. These factors are characteristics of a population expressed statistically (quantitatively or qualitatively) to understand their influence, positively or negatively, on health service utilisation. Sociodemographic factors include age, religion, residence, level of education, income, marital status, occupation, birth order, size of a family and age at marriage (Llewellyn, Ayers, McManus, Newman, Petrie et al 2019).

Social determinants of health are seen as a major component of the post-2015 SDG agendas and the push towards progressive attainment of universal health coverage (WHO 2021a; FMoH 2016:22). The social and institutional backdrop of the environment has a direct impact on maternal and newborn health (Hamal et al, 2020). These social determinants of maternal health include issues such as women's low social status (gender inequality), low socioeconomic status, harmful traditional practices, and low female literacy, all of which have a direct negative impact on reproductive health service utilisation (Hamal et al 2020; FMoH 2016:22).

Many Ethiopian women lack the reproductive and social autonomy required to exercise their reproductive rights (FMoH 2016:22). Social variables such as educational attainment have a significant impact on reproductive behaviour, fertility, infant mortality and morbidity, and attitudes and awareness related to maternal health utilisation (FMoH 2016:22). Despite the fact that the proportion of women of childbearing age (15-49 years) with no education has decreased by 35% in Ethiopia, from 75% in 2000 to 49% in 2016, disparities in women's education exist at all levels across regions, between urban and rural residents, and between rich and poor women (CSA & ICF 2016). Women's low social standing also leads to economic reliance and causes young women to participate in behaviours that endanger their reproductive health (CSA & ICF 2016). Early marriage is one of the most detrimental practices since it deprives girls of educational opportunities, causes poverty and economic instability, and has a major negative influence on their reproductive health and decision-making skills. According to the EDHS 2016 data, the median age at first marriage for women aged 25-49 was 17.1 years, compared to 23.1 years for males aged 25-59. Polygamy/polygyny is another issue that hinders women's rights, with an estimated 11% of married women in polygamous unions (CSA & ICF 2016). In Ethiopia, the pooled prevalence of the continuum of maternal health care services utilisation was 25.51% and sociodemographic factors as determinants of utilisation were employment, education and autonomy (Addisu, Mekie, Melkie, Abie, Dagnew, Bezie, Degu, Biru & Chanie 2022). However, across different findings, sociodemographic factors like ethnicity (Tsegaye, Shudura et al 2021), age (Tizazu et al 2021), education (Haile et al 2020), and residence (Emiru et al 2020) were generally not contextually studied as determinant factors for utilisation of MNH CoC services.

This study examines sociodemographic parameters that help or hinder the use of the continuum of care across several studies, as described below.

2.7.1.1 Age

The age of the mother is one of the determinants of utilisation of maternal health services in sub-Saharan African countries and teenaged mothers generally have low utilisation of maternal health services. A study conducted in sub-Saharan African countries shows that the odds of completing at least four ANC visits among mothers of the age groups 24-34 and 35-49 were increased by 24% and 42% respectively as compared with teenage mothers (Adedokun & Yaya 2020). For specific maternal services such as ANC, age is significantly associated with service utilisation (Tadesse 2020). Nevertheless, for CoC services, different studies conducted in Nepal (Chalise et al 2019), Bangladesh (Khan et al 2020)**,** Ghana (Enos et al 2021) and different parts of Ethiopia (Atnafu et al 2020; Haile et al 2020; Tizazu et al 2021; Emiru et al 2020) confirm that age is not a statistically significant factor.

2.7.1.2 Maternal education

Maternal education is one of the most crucial predictors of utilisation of the continuum of MNH services. Education is one of the most important aspects of social and economic development. It improves capabilities and is strongly associated with various socioeconomic variables such as lifestyle, income, and fertility for both individuals and societies. Twenty-four percent of females aged six and older in urban areas have no education, as compared with 54% of females in rural areas (CSA & ICF 2016). Maternal education is positively associated with completing the continuum of maternal health services. A study conducted in 22 sub-Saharan African countries reveals that mothers with secondary education had greater odds of receiving full CoC services compared to those mothers with no formal education (Carvajal, Wilson, Requejo, Newby, Eriksson, Liang, Dennis, Gohar, Simen-Kapue, Idele & Amouzou 2020). Studies conducted in different parts of Ethiopia (Asratie, Muche & Gereme 2020; Atnafu et al 2020; Tizazu et al 2021; Tsegaye, Shudura et al 2021) indicate that maternal education is significantly associated with completion of the full continuum of maternal care utilisation. However, studies conducted in

Nepal (Koirala, Kaphle & Yadav 2020) and Ethiopia (Haile et al 2020) reveal a positive relationship but insignificant association with completion of CoC.

2.7.1.3 Residence

Evidence shows that continuum of maternal and neonatal care utilisation is influenced by residence. Residing in urban areas significantly increases the utilisation of skilled care services. According to mini-EDHS 2019 findings, urban women were more likely to receive the fourth ANC or more, skilled birth attendance, and post-natal care services than rural women from a skilled provider with the proportion of 59% versus 37%, 72% versus 43% and 48% versus 37% respectively (EPHI & ICF 2019). Studies conducted in Ghana (Enos et al 2021) and Gambia (Oh, Moon, Choi & Kim 2020) indicate that urban residence is a strong predictor of completion of CoC and has positive associations. A study conducted in North-west Ethiopia indicates that women residing in an urban area were nearly five times more likely to complete CoC services than rural residents (Asratie et al 2020). However, completion of CoC was not statistically significantly associated with residence in studies conducted in other parts of Ethiopia (Tizazu et al 2021; Emiru et al 2020).

2.7.1.4 Employment and income

Evidence from 75 LMICs to estimate the coverage of RMNCH indicators and composite coverage index (CCI) to measure health system strengths by 2030 shows that most LMICs must attain a two-fold increase in the coverage of indicators from 2019 to 2030. Nevertheless, coverage of RMNCH indicators, the probability of target attainments, and the required rate of increase vary significantly across the spectrum of sociodemographic disadvantages. Most countries with poor historical and current trends for MNH coverage are not likely to achieve the desired targets because of higher disparities across the subgroups of wealth, place of residence, women's education and age. The gaps for CCI between the richest and poorest households are projected to be larger, yielding greater CCI among the richest compared to the poorest (Hasan et al 2020).

There is considerable evidence on income related inequality in health care utilisation. Wealthier women are more likely to achieve utilisation of CoC services than poor households in Ghana (Shibanuma, Yeji, Okawa, Mahama, Kikuchi et al 2018). In contrast, wealthy women indicated 16% lower ANC utilisation than poor women in Ethiopia

(Tsegaye, Shudura et al 2021). Income status had a positive relationship but insignificant association with completion of the CoC (Enos et al 2021). Another study shows that income status is not significantly related to the completion of CoC services (Haile et al 2020). The complete utilisation of CoC for neonatal and maternal care is affected by the employment status of a woman and her husband. Employed women had higher chances of using CoC services than non-employed women (Haile et al 2020). The husband's employment was significantly linked to the completion of CoC services. A study conducted in Enemay district (Ethiopia) confirms that women who had an employed husband were five times more likely to use CoC services than women whose husband was a merchant (Shitie, Assefa, Dhressa & Dilnessa 2020).

2.7.1.5 Religion and ethnicity

Religion and ethnicity are factors that determine the completion of MNH CoC services. Religion condenses a range of individual attitudes, beliefs, and behaviours that force individuals to receive care. Women who practise traditional religion are more likely to achieve CoC services as compared with Christians (Shibanuma et al 2018). An Ethiopian study has revealed that protestant religious followers were around twice more likely to drop from completing of CoC services than Orthodox Tewahedo followers (Muluneh et al 2020). Ethnicity can be linked with culture, way of life and area-specific health care practices but this factor has not been well studied by CoC studies. A study conducted in Southern parts of Ethiopia indicates that ethnicity was not statistically significant for accessing skilled CoC services (Tsegaye, Shudura et al 2021).

2.7.2 Obstetric factors affecting maternal and neonatal continuum of care utilisation in healthcare facilities

2.7.2.1 Parity, number of pregnancies and wanted pregnancy

Parity, number of children and intent of pregnancy influence maternal utilisation of the CoC. In Bangladesh, compared to wanted pregnancy, a high level of CoC utilisation for unwanted pregnancy was lowered by 62% and significantly associated (Khan et al 2020). A study conducted in Ethiopia indicates that multiparous and wanted pregnancy are significantly associated with the completion of the maternal continuum of care. Women with wanted pregnancies were three times more likely to complete CoC than women who had

unwanted pregnancies. Para five and above women were around three times more likely to complete continuity of maternal services than low parous women (Shitie et al 2020). In contrast, intended pregnancy (Shibanuma et al 2018) and birth order or parity (Haile et al 2020) were not significantly associated with the completion of CoC.

2.7.2.2 Early start of antenatal care utilisation

In Ethiopia, four and more ANC services are recommended. However, only 32% of women had at least four ANC visits during their last pregnancy, while 37% of women in Ethiopia had no ANC visits. Rural women are more likely to have had no ANC visits than urban women (41% and 10%, respectively) (CSA & ICF 2016).

Completion of CoC services highly depend on early initiation of ANC. Women who started ANC visits will have good awareness of services provided at each visit and a preparedness plan of delivery at health facilities. Studies conducted in Gambia and different parts of Ethiopia supported that early initiation of ANC visits was significantly associated with the completion of CoC services (Asratie et al 2020; Haile et al 2020; Oh et al 2020; Tizazu et al 2021). The odds of completing the CoC were almost 11 times higher for mothers who had first ANC visits <16 weeks of gestation than mothers who started ANC visits ≥16 weeks of gestation (Haile et al 2020). Only 20% of women had their first ANC visit during the first trimester, 26% during their fourth to fifth month of pregnancy, and 14% during their sixth to seventh month of pregnancy. Two percent of women did not receive any ANC until the eighth month of pregnancy or later (CSA & ICF 2016). According to EDHS 2016, from the total women who received ANC, only 42% received iron folate, 75% had their blood pressure measured, 73% had a blood sample taken, 66% received nutritional counselling, and 66% had a urine sample taken as a part of ANC visits, with great disparities across residency and regions of Ethiopia (CSA & ICF 2016). This indicates that women did not receive the recommended quality lifesaving interventions during their ANC attendance.

2.7.2.3 Knowledge of maternal and neonatal services and previous complications

Women who utilise maternal and neonatal healthcare services have sound knowledge of maternal and neonatal danger signs which happen during pregnancy, labour, delivery, and postpartum periods (Mersha, Assefa, Teji, Bante & Shibiru 2017; Wassihun, Negese, Bedada Bekele, Bante et al 2020). Danger signs are not the actual complications but

symptoms that are directly recognised by non-clinical persons. Severe vaginal bleeding, prolonged labour, convulsion, retained placenta, foul smelling vaginal discharge and fever are the most common danger signs that occur during labour, delivery and postpartum periods and can easily be recognised by women (Wassihun et al 2020). Most maternal and neonatal deaths are avoidable if women have awareness of obstetric danger signs, and all women need access to high quality of care during the CoC. Evidence suggests that raising awareness of women about labour, delivery and postpartum complication danger signs would improve early identification of problems and reduce delay in deciding to seek obstetric care (Wassihun et al 2020). An Ethiopian study confirms that women who had knowledge of danger signs were more likely to complete the CoC services than women who were not knowledgeable and women who had knowledge of danger signs were statistically significant with completion of CoC services from skilled providers (Tizazu et al 2021).

2.7.2.4 Perceived quality of services

Quality of care is critically important to improve the coverage of maternal and neonatal CoC service utilisation. Moreover, the uptake of the services is not only influenced by the technical quality of services but also depends on acceptability, client centredness and perceptions. Interconnected community, health system, and individual or community factors shape perceptions of the quality of care (Hanefeld Powell-Jackson & Balabanova 2017). A systematic review in sub-Saharan Africa shows that free maternal health care service has been implemented to improve the service utilisation of pregnant women, but women have a poor perception of the free services because of “long waiting time, ill-attitudes [sic] of providers, inadequate supply of essential drugs and lack of potable water, unequal distribution of skilled birth attendants, out-of-pocket payment and weak patient complaint system” (Ansu-Mensah, Danquah, Bawontuo, Ansu-Mensah & Kuupiel 2020). Quality maternity and neonatal services encompass the availability of equipment, supplies, guidelines, and procedures; health workers' knowledge, skills, training, experience, and motivation; and client satisfaction with the care they received. Ethiopia has rapidly expanded its primary healthcare infrastructure through the accelerated expansion effort, which has resulted in the construction of over 16,000 health posts (1 per kebele) and over 3,500 medical centres. However, the proportion of basic emergency obstetric and newborn

care (BEmONC) and comprehensive emergency obstetric and newborn care (CEmONC) facilities is still inadequate to manage the expected obstetric and neonatal complications that occur in rural areas (FMoH 2016). Completion of the CoC services is significantly associated with women's perception of the quality of services. A study conducted in Northwest Ethiopia reveals that women who were satisfied with the service delivery were more likely to complete MNH CoC services than those who were not satisfied (Atnafu et al 2020).

2.7.3 Health service related factors affecting maternal and neonatal continuum of care utilisation in healthcare facilities

2.7.3.1 Distance and transportation

Distance from health facilities and transportation availability and means of transportation determine maternal utilisation of CoC services in resource limited countries. Studies conducted in Ghana and Ethiopia confirm that completion of maternal CoC services is statistically significantly related to the distance to health facilities (Enos et al 2021) and means of transportation (Atnafu et al 2020). Pregnant women who can reach health facilities within 30 minutes were more likely to complete continuity of care services than women who had to travel more than 30 minutes (Asratie et al 2020). In contrast, according to research done in Kaski District (Nepal), distance from health facilities was not statistically significant for completion of CoC services (Koirala et al 2020).

2.7.3.2 Availability of services

According to the WHO (2016b), every pregnant woman and neonate should receive quality of care services such as health promotion, screening, diagnosis, and disease prevention throughout the CoC (WHO 2016b). Availability of recommended services influences the utilisation at primary healthcare settings, especially in resource limited countries. According to EMDHS, of women with ANC, only 42% received iron folate, 75% had their blood pressure measured, 73% had a blood sample taken, 66% received nutritional counselling, and 66% had a urine sample taken as a part of an ANC visit, with great disparities across residency and administrative regions of Ethiopia (CSA & ICF 2016). A study conducted in Ethiopia confirms that women receiving the recommended contents of ANC consultation were more likely to complete the CoC compared to women who received poor quality of

ANC components (Emiru et al 2020). A study conducted in Debre Birhan (Ethiopia) indicates that a significantly high proportion of pregnant women, i.e., 98.1%, received blood pressure measurement, 94.1% received nutritional screening, 71.4% received tetanus toxoid (TT) vaccine, 91.3% received iron folate and 38.6% received deworming and women also provided 96.3% of urine samples and 98.6% blood samples for further investigation during ANC follow-ups, but these services were not statistically significant for the completion of maternal CoC services (Tizazu et al 2021). Lack of services during their CoC lead to women's non acceptance of the care and eventually to discontinuation of care.

2.7.3.3 Home visit by health extension workers (HEWs) and referral system

Investing in community health workers (CHWs) has been a growing global interest for their potential impact on strengthening primary healthcare linkage for women and children. Many southern Asian and African countries like India, Bangladesh, Kenya, Uganda, Ghana, South Africa and Ethiopia have been investing in capacity building, training and deploying cadres of CHWs to focus on maternal and child health (Perry & Zulliger 2012). An Indian study indicates that exposure to community health workers is linked with an increased probability of women receiving at least one antenatal and skilled birth attendance. Women's exposure to an accredited social health activist (ASHA) shows an increase of 12% in utilising at least some of the maternal services. However, exposure to ASHA does not increase the probability of women utilising all the services along the continuum (Agarwal, Curtis, Angeles, Speizer, Singh & Thomas 2019).

In Ethiopia, HEWs have played key roles in strengthening maternal and neonatal health services at community level and providing a referral system to the health facilities (FmoH 2015). A study conducted in Northern Ethiopia indicates that 14.5% and 24.1% women and neonates received postnatal care services by HEWs in their home within three days and within 42 days respectively. The services received during the postnatal period were measuring blood pressure, temperature, counselling on neonatal danger signs, counselling regarding skin-to-skin care, and measuring neonate weight (Tesfau, Kahsay, Gebrehiwot, Medhanyie & Godefay 2020).

2.7.4 Factors affecting utilisation of maternal and neonatal continuum of care at household and community level

2.7.4.1 Family and husband support

Family and husband involvement and support provide a significant contribution in all types of maternal and neonatal services. Studies indicate that the guidance and support of relatives and husbands as well as their involvement during pregnancy and childbirth have encouraging outcomes. Evidence from a multi-analysis of demographic and health surveys from 31 sub-Saharan African countries shows that 53% of women utilised adequate ANC but 13% of women did not utilise ANC use. Women who received permission from their partners to use health services were more likely to utilise ANC services adequately than women who experienced a lack of support from their partners (Adedokun & Yaya 2020). The study also indicates that the decision to utilise health services by women was determined by the consent of their husbands. If husbands prevented women from utilising the services, the men believed women were acting in violation of their husbands' wishes and saw it as unpardonable behaviour, leading to conflict (Adedokun & Yaya 2020).

A meta-analysis in middle and low-income countries shows that involvement of male partners in ANC was associated with skilled birth attendance, institutional delivery, and postnatal uptakes (Suandi, Williams & Bhattacharya 2020). This indicates that women are willing to utilise ANC but their failure to navigate easily to the facilities will impede their utilisation of the services. Even refusal to visit health facilities alone is another issue influencing all recommended MNH services. In these conditions, women may not be eager to visit health facilities without the approval of their partner or close relatives according to their convictions (Teklesilasie & Deressa 2020).

Husband involvement is statistically significantly associated with the completion of all recommended ANC. A cross-sectional study conducted in Northern Ethiopia shows that women who enjoyed husband support during ANC were around three times more likely to complete all recommended schedules on time than those women who were not supported by their partners (Ftwi, Gebretsadik, Berhe, Haftu, Gebremariam & Tesfau 2020). Then again, pregnant women's perception, attitudes, and norms determine males' participation during women's MNH services utilisation. The study findings show that most pregnant

women had undesirable perceived norms, attitudes, and apparent behaviour control towards masculine participation in the use of maternal services (Moshi, Kibusi & Fabian 2020). The attitude towards masculine participation during maternal services use was also influenced by the level of education and economic status of pregnant women (Moshi et al 2020). An Ethiopian study confirms that a range of factors discouraged the involvement of husbands in their wives' maternal health care utilisation process (Teklesilasie & Deressa 2020).

2.7.4.2 Decision making

Women's autonomy is the ability to obtain reliable information and make decisions based on the available information within their household or outside of the home, depending on the gender customs in the community (Nepal, Dangol, Karki & Shrestha 2023). Studies show that male dominance and patriarchal power structures are based on the hegemony of the male over the female (Zegeye, Ahinkorah, Idriss-Wheelr, Oladimeji, Olorunsaiye & Yaya 2021). Another study indicates that the gender norms or customs for most ethnic groups in Ethiopia function along patriarchal lines and are habitually observed through the male lens (Tsegaye, Shudura et al 2021). About 20.4% of women are not autonomous in decision-making regarding maternity care in Ethiopia (Haile et al 2020). The health care decision-making ability of women plays a momentous role in determining their health seeking behaviour which can be assessed based on their involvement in their household decisions. The Ethiopian 2016 DHS report confirms that 10% of women had not participated in the decision-making process regarding their own health care, household consumption procurements and visiting their relatives or families. Twenty-one percent (21%) of the decisions on large household purchases are made by the husband alone, and 78% jointly by the wife and partner. About 84% of women said that decisions to visit family or relatives were made jointly but 21% by husbands alone (CSA & ICF 2016).

The relationship between women's autonomy and maternal healthcare seeking behaviour has been examined by many studies. According to a study conducted in South Ethiopia, autonomous women were more likely to utilise postnatal services than non-autonomous women and were significantly associated with postnatal services (Tsegaye, Shudura et al 2021). Household autonomy has shown a statistically significant positive effect on completion of maternal CoC utilisation. A study conducted in Enemay district of Ethiopia

confirms that women who have autonomy in health care decisions are more likely to complete CoC services than those who are not autonomous (Shitie et al 2020).

2.7.4.3 Members of the Health Developing Army (HDA) and participation in the Pregnant Women's Conference (PWC)

The utilisation of MNH care services greatly improved after introducing the HDA and the PWC. A study conducted in Northwest Ethiopia confirms that 54.3% of women who attended the PWCs utilised institutional delivery compared with 39.9% of those who did not participate. Pregnant women who participated in the PWC and discussed the place of birth with their partners or families were around eight times more likely to attend institutional delivery than women who did not participate (Asresie & Dagnew 2019). Women who participated in the HDA were more likely to utilise MNH services with the support of the leader from their team. A study conducted in four regions of Ethiopia confirms that kebeles with one active HDA (higher category) team leader for up to 40 households had nine times higher coverage of institutional deliveries compared with kebeles with one active HDA team leader for 60 or more households (lower category). Another study conducted in Southern Ethiopia reveals that women who did not participate in the women's HDA were five times more likely not to utilise postnatal services than those who participated in women's HDA (Manote & Gebremedhin 2020).

2.7.4.4 Mass media

Exposure to media has positive effects on the MNH CoC services. Women require appropriate information from different sources (television, radio, and newspapers) about the CoC services utilisation which can help them in decision making. Mass media can help women to comprehend the importance of utilising the continuum of health care by providing information through visual images, audio messages, and written reports (Fatema & Lariscy 2020).

A study conducted across 24 countries of sub-Saharan Africa reveals that 61.5% of women face barriers in accessing health care. Among these impeding factors, lack of access to information from different sources that can be used for decision making to utilise services is the most significant. Those women who read newspapers or magazines at least once a week have lower odds of facing barriers in accessing healthcare (Seidu 2020). A study

conducted in Ota (Nigeria) shows that mass media exposure significantly influences maternal health awareness. Increasing awareness becomes critical in aiding the use of maternal and neonatal care services and reducing maternal and neonatal mortalities (Igbinoba, Soola, Omojola, Odukoya, Adekeye & Salau 2020).

Continuity of maternal and neonatal care is influenced by media access. Studies show that maternal and neonatal service use is statistically significantly related to mass media access. A study conducted in Ethiopia confirms that women who were not exposed to media were significantly associated with dropping out from institutional delivery (Muluneh et al 2020). Another study indicates that women who have exposure to media are around twice more likely to complete the continuum of maternal care services as compared to those who do not have mass media exposure (Shitie et al 2020). Then again, mass media use was not statistically related for the use of antenatal care services in Awassa Town, Ethiopia (Tsegaye, Shudura et al 2021).

2.8 BARRIERS THAT HINDER MATERNAL AND NEWBORN HEALTH CONTINUUM OF CARE (MNH COC) SERVICE UTILISATION

Barriers to MNH CoC services deter women from accessing the continuity of care they need in terms of availability, adequacy and quality. The MNH CoC service barriers include personal barriers, community and cultural barriers, and organisational barriers (Mohamed, Bocher, Magan, Omar, Mutai, Mohamoud & Omar 2021). Individual barriers refer to the personal beliefs and attitudes that impede women from utilising recommended health services. Mistrust of public health facilities because of apathetic attitudes, sabotage and poor management of health workers influences women to interrupt maternal and neonatal health services. Inability of mothers to recognise complications in the early stages is another individual barrier that hinders women from accessing routine visits and leading women to conduct visits only in the case of severe complications (Asim, Saleem, Ahmed, Naeem, Aberejo et al 2021).

Economic barriers hinder women from accessing maternal health services. Even though maternal health services are given free of charge, extra costs including transportation, food and medication costs prevent women from accessing critical care along the MNH CoC pathways (Mohamed et al 2021).

Sociocultural barriers are rules and patterns not universally acceptable by all members of society, but these barriers influence women from seeking health services. Evidence indicates that aversion to biomedical interventions, gendered imbalance in decision making, and restricted mobility for seeking care deter women from the utilisation of care. Dietary supplementation and vaccinations are important for better health outcomes for both the women and their neonates, but many women and their families worry about biomedical interventions (receiving iron folic acid, vitamins and tetanus vaccination during pregnancy) and associate them with negative consequences and eventually this leads to complications. Decisions to select the place of delivery are influenced by men rather than women. Women want to deliver at health facilities, but men need women to deliver at home to save money. In some conditions, women are not allowed to go to health facilities for accessing health care by themselves. This restriction delays women from timely access to recommended care from health facilities (Asim et al 2021).

Traditional beliefs and cultures often bar women from accessing MNH CoC services from health facilities. These traditional beliefs prevent women from an early start of ANC booking and facilitated home deliveries. The community beliefs and cultures deter women from utilisation of MNH CoC services from skilled providers and eventually result in negative outcomes. A study conducted in Southern Ethiopia indicates that women believed that people should only know about their pregnancy either after pregnancy or when their pregnancy becomes visible to others. Furthermore, delivery at home is considered normal and women who deliver at health facilities are considered weak (Kea, Tulloch, Datiko, Theobald & Kok 2018).

Religious beliefs and laws influence the health seeking behaviours of women and these influences differ from country to country. These influences prevent women from accessing and utilising MNH CoC services from skilled providers. Muslim followers prefer female health workers for their clinical examinations and attendance during their labour and delivery (Hassan 2022). In Ghana, women prefer skilled birth attendance, but their religious obligations are often not respected by health workers (Ganle 2015). A study conducted in Eastern Ethiopia indicates that religion is influential in the behaviours of women in seeking care. Muslim religion followers were less likely to seek maternal health services as compared to Christian followers. This was linked to Muslim women’s belief that their naked

body should only be seen by their husbands and accordingly they preferred female traditional birth attendants to male skilled birth attendants (Kifle, Azale, Gelaw & Melsew 2017).

Organisational barriers such as a lack of well-equipped health facilities, absence of medication, poor functionality of public health facilities and limited working hours at such facilities were the most common barriers that affect MNH CoC service utilisation (Mohamed et al 2021). A study conducted in Eastern Ethiopia indicates that incomplete services because of unavailability of electric power, medication, reagents and medical equipment were the identified barriers that prevented women from utilising MNH services (Kifle et al 2017). In Ethiopia, a shortage of experienced health workers, and a lack of clean water supply and food in health facilities made women reluctant to deliver in such facilities (Medhanyie, Alemayehu, Hadush, Berhanu, Gebremariam, Hailu, Beyene, Ahmed & Mulugeta 2019). Women were hesitant to attend continuity of MNH CoC services due to a lack of privacy and discomfort during physical examination and childbirth when they were exposed to many health workers and other clients (Burrowes, Holcombe, Jara, Carter & Smith 2017).

2.9 THEORETICAL FRAMEWORKS, MODELS, INTERVENTIONS, POLICIES AND STRATEGIES TO REDUCE MATERNAL AND NEONATAL MORTALITY

High quality MNH care represents essential services which must be sustained to protect the lives and health of women and neonates (WHO & UNICEF 2020). Theoretical frameworks, models, interventions, policies and strategies that are used to reduce maternal and neonatal deaths are reviewed and unpacked below.

2.9.1 Theoretical frameworks and models for reducing maternal and neonatal mortality

A theoretical framework is a well organised construct used to explain a phenomenon (Nayak & Singh 2015:27), assist researchers to explain individual behaviours (Lopez, Grey, Chen, Tolley & Stockton 2016:5), identify factors that affect the outcome variables (Lopez, Tolley, Grimes & Chen-Mok 2009:411), and is used to make comparisons across different studies (Brewer & Rimer 2008:150). For this study according to the research objectives

and questions, primary health care (PHC) and the Andersen model were selected and finally adopted as a conceptual framework for guiding this research.

2.9.1.1 Primary health care model (PHC)

Numerous comparative analyses of health systems have demonstrated that PHC is the most equitable, efficient, and effective strategy to enhance the health of populations (WHO & UNICEF 2018). The PHC model is widely used in research to study access to health care (Kósa, Katona, Papp, Fürjes, Sándor, Bíró & Ádány 2020). Access is defined as the ability, or perceived ability, to reach health services or health facilities in terms of location, timeliness, and ease of approach (WHO & UNICEF 2018). Geographic accessibility is the term used to describe how close health services or providers are to their customers and how customers can overcome the geographic gap between their location and the services' or providers' location (Kayrite, Salgedo, Weldemarium, Sinkie, Handalo, Obola, Kebene, Geredew & Likka 2020). Access to health care includes the dimensions of acceptability, availability, affordability, and accommodation (Marsack-Topolewski & Weisz 2020).

Accessing good maternal health care services can ensure the health benefits of women within the current pregnancy, future pregnancies and long-term health and wellbeing in a continuous and integrated care through pregnancy, labour, childbirth, and the postpartum periods. The changing healthcare needs of women have profound implications for health systems and will require resource allocation, prioritised funding, and political commitment (Firoz, McCaw-Binns, Filippi, Magee, Costa et al 2018). Many women still lack access to maternal health services in Ethiopia. A study conducted in Jima Zone confirms that 32% of women did not have geographical access to, 54% of did not have availability, 53% of women did not have affordability, and 54% of women did not have acceptability of institutional delivery services (Kayrite et al 2020). As compared to urban women, rural women have less access to maternal services in Ethiopia. A mini-EHDS confirms that in rural parts of Ethiopia 37% of women received the fourth ANC, 43% skilled delivery, and 29% PNC services, but in urban parts of Ethiopia a higher proportion of women utilised fourth antenatal (59%), delivery (72%) and postnatal (48%) care from skilled providers (EPHI & ICF 2019).

According to Otieno, Wambiya, Mohamed, Mutua and Kibe (2020), availability regulates the existence of necessary health care resources, for instance skilled health workers, infrastructure or organisation, technologies and essential medicines and supplies required to meet healthcare needs of the clients. Affordability relates to clients' ability to pay the overall costs of health care services, including the direct and indirect costs of care (Kayrite et al 2020). Acceptability states that the beliefs and attitudes of clients about the health care system relate to the personal approaches or practice characteristics of health care providers. It is the extent of confronting individual clients with the individualities of the healthcare service providers (Otieno et al 2020; Kayrite et al 2020).

Acceptability of services can be related to sociodemographic characteristics or determinants where women in south Asia and sub-Saharan Africa who receive some or all the components of the CoC have greater autonomy and are richer and more educated than women who receive none of the CoC services (Singh et al 2016).

Accommodation encompasses the ways PHC resources are organised in relation to the clients' ability to come into contact with, gain entry to and navigate the system (Kayrite et al 2020). Arrangements to improve the health system supply of accessible care have been linked to improvements in the maternal and neonatal CoC. Researchers in different countries have identified similarities in the setting, population group and funding of interventions targeted at improving organisations' ability to supply accessible care (Richard, Furler, Densle, Haggerty, Russell et al 2016). Organisational interventions aimed at improving availability of PHC services could improve health outcomes (Khanassov, Pluye, Descoteaux, Haggerty, Russell et al 2016), but in most of the situations the availability of health care facilities and services is limited in rural settings (Dassah, Aldersey, McColl & Davison 2018). Evidence in low and middle-income countries indicates that there is limited experience for assessing the quality of available MNH services (Sheffel, Karp & Creanga 2018). A study conducted in Morocco indicates that mothers who gave birth at the primary care hospitals reported the presence of some equipment and supplies shortages and poor treatment received from the health care workers (Baayd, Simonsen, Stanford, Willis & Frost 2021). For this study, the maternal and neonatal CoC availability includes skilled health workers, a range of different services, medical equipment, diagnostic tests, essential obstetric drugs, and transportation; however, these

availabilities have been affected by the leadership, resources, policies and ongoing capacity building strategies at lower levels (Warren, Hossain, Ishaku, Armbruster & Hillman 2020). A limited number of health care workers, an insufficient referral system (lack of transportation, inaccessibility of road and distances) and inexperienced health workers lead to dissatisfaction of women receiving the care (Baatiema, Tanle, Darteh & Ameyaw 2021) and eventually to the interruption of MNH CoC services.

2.9.1.2 Andersen's behaviour model of health care utilisation

The utilisation of health care is the entry point in the health system where the needs of services takers are met by the provider. Health care utilisation is well known to be supply-induced and heavily reliant on the design of the health system, in addition to need-related factors. Different scientific studies reveal that there are differences in the continuum of MNH care utilisation and many scholars have identified the determinants of health care utilisation (Rahman et al 2021; Singh et al 2016; Hamed et al 2018). Andersen's behavioural model of health care utilisation is widely used to study the determining factors of health care utilisation in many studies (Tesfaye, Chojenta, Smith & Loxton 2018; Neupane, Rijal & Basnet 2020). These determining factors are pre-disposing, enabling and need factors (Andersen 1995).

2.9.1.2.1 Pre-disposing factors

According to Merriam Webster, a predisposing factor is a factor that makes the individual or group susceptible for the event. Different studies show that age is a predisposing factor for the utilisation of individual maternal health services (Adedokun & Yaya 2020). For utilisation of the continuum of maternal and neonatal services, the pre-disposing factors are education (Carvajal et al 2020), religion (Shibanuma et al 2018), ethnicity (Tsegaye, Shudura et al 2021), marital status, and employment of women (Haile et al 2020).

2.9.1.2.2 Enabling factors

For health service utilisation, organisational factors, and individual financing ability are considered as enabling factors. According to Andersen (1995), individual financing factors include the household income and wealth or individuals' ability to pay for health services and the effective cost of the care is determined by the individuals' cost sharing and

insurance status. For this study, individual enabling factors include household income, husband's education and employment, decision making, family support, participation in the PMC and membership of the HDA and their support to use the CoC. The women's ability to finance their CoC depends on organisational factors and the resources available in the community. These include means of transportation, distance to the health care facilities, distribution of health care types, structures and locations, the relative prices of health care services, method of compensation, the professional mix, outreach and household visit programs and the health policy of the health system.

2.9.1.2.3 Need factors

Andersen and Davidson (2001:3-30) differentiate between individual levels of perceived need and the evaluated needs of providers for health service care. Individual level perceived needs indicate how people view and experience their own general health status, functional state, and illness symptoms. Evaluated need includes experiment assessments and objective measurements of clients or patients and their need of health care. For this continuum of care study, the need factors comprise parity, number of children, need of additional pregnancy, timing of ANC, birth preparedness, previous obstetric history, knowledge of MNH, and perceived quality of services.

2.9.2 Continuum of care interventions to reduce maternal and neonatal mortalities

2.9.2.1 Interventions during the antenatal period

Antenatal care (ANC) is a preventive health care strategy provided to pregnant women in the continuum of maternity care by skilled providers to encourage a healthy lifestyle that benefits both mothers and their neonates (MoH 2021:1). This guideline further states that during ANC, pregnant women receive risk identification, prevention and management of pregnancy related concurrent diseases, health education and health promotion services. The recommended routine ANC service includes ANC screening and diagnosis of risks that have contributed to a reduction in the incidence of birth defects, miscarriages, low birth weight, neonatal infections, maternal morbidity and deaths and other preventable health complications (Gülmezoglu, Lawrie, Hezelgrave, Oladapo, Souza …Temerman & Walker 2016b:119-126; WHO 2015a).

Preeclampsia/eclampsia is one of the top direct causes of maternal mortalities during the maternal CoC (Gülmezoglu, Lawrie et al 2016b:116). Early prevention, identification and management of preeclampsia and eclampsia reduce the death of women along the maternal continuum of pathways. Supplementation of aspirin and calcium are the best interventions for reducing preeclampsia risk among pregnant women. Calcium supplementation is used to reduce the risk of preeclampsia among women who have low dietary calcium intake. Early supplementation of calcium halves the preeclampsia risk in all women. Aspirin supplementation reduces the risk of preeclampsia in high-risk women (Gülmezoglu, Lawrie et al 2016b:117). Early detection of preeclampsia during ANC visits is vital for timely interventions and prevention of progression to severe diseases (WHO 2023). Monitoring of blood pressure and conducting urinalysis are the most important screening interventions to detect preeclampsia during pregnancy (Gülmezoglu, Lawrie et al 2016b:119-120). After detection, regular monitoring is required to prevent the severity of the disease and related morbidity and mortality of women. Early referral is required for further quality management if the experienced health workers and caesarean section (C-section) facilities are not available (Gülmezoglu, Lawrie et al 2016b:119-120). The most proved definitive cure for preeclampsia is delivery through induction of labour and prelabour C-section. To reduce morbidity and mortality due to eclampsia, the disease is managed using antihypertensive drugs for blood pressure control and magnesium sulphate. Magnesium sulphate can reduce the risk of first seizure in women with preeclampsia and recurrent seizures in eclampsia with a trend to reduce maternal mortality (Gülmezoglu, Lawrie et al 2016b:120; WHO 2023).

During ANC, folic acid supplementation and tetanus immunisation are implemented for all women to reduce the risk of neural tube defect and congenital syphilis. Antenatal screening and treatment of malaria, HIV, syphilis and gestational diabetics are applied to reduce perinatal mortality and morbidity (Gülmezoglu, Lawrie et al 2016b:124-125; MoH 2021).

2.9.2.2 Interventions during childbirth

Institutional delivery for every baby under supervision of skilled health professionals is the most proved intervention for better maternal and neonatal outcomes (WHO 2020b). Women who receive good skilled provider support during labour and childbirth tend on average to have shorter labour, control their pain better, and have less need of medical

interventions (WHO 2013). Skilled care during labour and delivery enhances the birth experience and reinforces the positivity women need when caring for their children. Proper care for women during labour and delivery is intended to foster healthy relationships between them and their families while ensuring their safety and that of their babies, preventing or decreasing difficulties, and reacting to emergencies (WHO 2020b).

According to the World Health Organisation (2017b:10), interprofessional collaboration is needed to maintain optimum maternal and neonatal welfare, particularly when care is delegated to or shared with other professionals. To accomplish MNH CoC, the following major family-centred recommendations were offered during childbirth care:

- During active labour and deliveries, all women should receive compassionate care and the frequent physical presence of medical providers.
- During labour and birth, skilled professionals create a relationship with women and inform them about their wants and objectives.
- Women are supported to make ongoing, informed decisions, encouraged to participate in their care decisions, and treated with respect throughout active labour and birth.
- Health care providers demonstrate mutual respect and work well together, recognising the critical role each of them plays in providing labour and delivery services to women.
- CoC interventions for mothers and neonates are only guaranteed if the explanations for them are well founded and evidence based.

Skilled attendance has an encouraging impact on the reduction of maternal and neonatal death by facilitating early detection and proper management of complications during the labour and delivery process (Ayele, Melku & Belda 2019). Obstetric management of labour is the most preventive intervention to save the lives of women during or after delivery (WHO 2023). Caesarean delivery is the backbone of the management of obstetric labour (Gülmezoglu, Lawrie et al 2016b:121) but according to the EDHS, the rate of caesarean delivery in Ethiopia was only 2%, which indicated that there were limited facilities that were able to perform caesarean delivery (CSA & ICF 2016).

The highest rates of maternal mortalities have occurred in sub-Saharan African countries with low coverage of skilled delivery care, including Ethiopia (UNICEF 2022). The commonest direct obstetric causes of maternal mortality are haemorrhage (postpartum haemorrhage – PPH), haemorrhage due to placental abruption, placental previa, rupture of uterus and others (Gülmezoglu, Lawrie et al 2016b:116-117), which cause 25-43% of maternal deaths in developing countries (Umashankar et al 2013 cited in Nigussie, Girma, Molla, Tamir & Tilahun 2022). In Ethiopia, the pooled magnitude of PPH in 2021 was 8.24% (Nigussie et al 2022).

According to proven evidence, clinical management of PPH using oxytocin (WHO 2023) and misoprostol reduces the complication and the risk of death (Gülmezoglu, Lawrie et al 2016b:117). Oxytocin can halve PPH risks when used routinely for prevention. It is also recommended for the prevention and treatment of PPH. If oxytocin is unavailable, misoprostol is recommended for the management of PPH. It is used to reduce PPH risks and the need for blood transfusion among women (Gülmezoglu, Lawrie et al 2016b:117).

Maternity waiting homes before delivery represent one of the interventions used to reduce maternal deaths, especially for women who live far away and who experience complications (Dadi, Bekele, Kasaye & Nigussie 2018). Dadi et al (2018) indicated that in developing countries maternity waiting home users were 80% less likely to die than non-users. Similarly, there was a 91% reduction of maternal deaths among maternity waiting home users compared to non-users in Ethiopia (Dadi et al 2018).

2.9.2.3 Interventions during the postnatal period

Postnatal care services are a fundamental component of the CoC and are key to achieving the SDG on MNH, including the target of reducing preventable maternal and neonatal mortality rates (WHO 2022b). The major lifesaving interventions during postnatal care include assessment of maternal and neonatal health status, prevention and early identification of complications such as bleeding, anaemia, and infections (WHO 2022b), provision or supplementation of folic acid and iron for 6-12 weeks for women in settings where gestational anaemia is a public health concern (Sumankuuro, Crockett & Wang 2018:e1; WHO 2022b). Sepsis is one of the known causes of maternal deaths and morbidities. Sepsis after childbirth can be prevented if good hygiene is practised and if

early signs of infection are detected and treated timeously (WHO 2023). Management of sepsis is another intervention using prophylactic antibiotics at C-section to reduce the risk of infection, endometritis and serious maternal infections (Gülmezoglu, Lawrie et al 2016b:122; WHO 2023).

Provision of psychological or psychosocial interventions during the postpartum period are recommended to prevent postpartum depression and anxiety. Provision of accurate information, health education and counselling on nutrition and postpartum family planning as well as safer methods of family planning are important interventions (WHO 2022b). In the Ethiopian context, during facility follow-up 24 hrs after delivery by skilled providers, women are advised to attend PNC follow-up visits in nearby health facilities. In practice, due to the shortage of rooms, the high load of facility delivery, and a lack of provision of food and other services, especially in health facilities, early discharge of women is common. Despite advice by skilled providers to revisit the health facility for PNC services, only a small proportion of women revisit the health facilities (CSA & ICF 2016). In response to these gaps, home visits by HEWs have been promoted as a PNC strategy to reduce morbidities and mortalities. A study done in Ethiopia shows that 14.5% of mothers received PNC home visit services from HEWs within three days and 24.1% women within 42 days after birth (Tesfau et al 2020). This study further indicates that during home visits 6.5% of women received blood pressure screening, 11.2% temperature screening, 20% were counselled about family planning, 11.2% were counselled about skin-to-skin care, 16.5% were counselled about neonatal danger signs, and 14.1% of neonates' weight was measured (Tesfau et al 2020).

2.9.2.4 Interventions to reduce neonatal mortality

Essential care during childbirth such as immediate care at birth (delayed cord clamping, thorough drying, assessment of breastfeeding, skin-to-skin contact, early initiation of breastfeeding), immunisation, thermal care, resuscitation, assessment of health problems and recognition of and response to danger signs are the most common interventions to prevent neonatal mortality (Gülmezoglu, Lawrie et al 2016b:123-127; WHO 2017b). The WHO guidelines further show that proper monitoring and evaluation of well-being and identification of danger signs such as fast or slow breathing, preterm birth, low birth weight,

infections and abnormalities would prevent neonatal mortality along the CoC (WHO 2017b).

The neonatal health interventions critical across the CoC pathways can be affected by the maternal health conditions, and the health and community systems (Gülmezoglu, Lawrie et al 2016b:123-124; WHO 2017b). Evidence gathered in Ethiopia indicates that neonates of mothers whose pregnancy is complicated with antepartum haemorrhage, pregnancy induced hypertension, and with multiple pregnancies are significantly associated with neonatal mortality (Eyeberu, Shore, Getachew, Atnafe & Dheresa 2021). This study further shows that neonates delivered at health centres, neonates with low birth weight, neonates with perinatal asphyxia and early onset of neonatal sepsis are factors significantly associated with neonatal mortality (Eyeberu et al 2021). High impact quality interventions addressing these determinants prevent neonatal mortality during the intrapartum and postnatal periods of the CoC (Gülmezoglu, Lawrie et al 2016b:123-127; WHO 2017b:7-18). In general, high impact interventions are needed across the CoC (ANC through PNC and interventions at several levels, including family, community, and health facility) to prevent newborn mortality (Gülmezoglu, Lawrie et al 2016b:123-127).

2.9.3 Policies and strategies to reduce maternal and neonatal deaths

Health policy is defined by the WHO as the *"decisions, plans, and actions that are undertaken to achieve specific health care goals within a society".* It involves the regulation, financing and provision of a wide range of medical and non-medical services to promote health outcomes (Trien 2019). Health policy reduces inequalities which are the core of the SDGs, specifically SDG-3, to ensure healthy lives and promote well-being for all ages (WHO 2016c). The ability to conceptualise equity, the interaction between institutional and individual actors, and the context in which they operate, as well as the influence that various actors have on policies that promote equity are all examples of opportunities that policy actors successfully identify and seize (Sriram, Topp, Schaaf, Mishra, Flores et al 2018). According to the WHO, all countries should increase efforts to reach vulnerable populations with high quality primary health, sexual, reproductive, maternal, and neonatal health care services to reduce mortalities and achieve the SDGs. Every time a social gradient exists for those disadvantaged women and neonates, there are disparities in access to and quality of healthcare (WHO 2015b).

2.9.3.1 Primary health care strategy

Primary health care (PHC) is the most inclusive, equitable, cost effective and efficient approach to enhancing maternal and neonatal wellbeing across the CoC pathways (WHO 2021b). It enables the health system to support women's health needs from preconception to the postnatal period. It is capable of increasing women's access to the level of care they need and can reduce the morbidities and mortalities related to pregnancy through postnatal health outcomes (WHO 1978). The foundation of primary health care is multisectoral policies and actions that address wider determinants of health, comprehensive integrative health services that prioritise primary care as a core component, and engaging and empowering women, families, and communities to improve self-care and self-reliance in health along the CoC. (WHO 2021b).

Most maternal and neonatal deaths occur during childbirth or within the first day of birth. Basic obstetric care access and delivery along the continuum pathways are vital and the most important lifesaving interventions to decrease maternal and neonatal morbidities and mortalities to achieve the SDG targets (WHO 2021b). Access to quality of CoC services is not optional in PHC strategy; it is obligatory to reduce the complications and mortality of women and their neonates (Berhane, Gebrehiwot, Weldemariam, Fisseha, Kahsay & Gebremariam 2019). Another fundamental premise of PHC is the provision of CoC that does not differ in quality based on individual factors and socioeconomic levels. Accessibility of CoC refers to the provision of care that is geographically feasible, timely, and delivered in facilities with appropriate capabilities and resources for medical needs (Pesson 2017).

A systematic review in sub-Saharan Africa indicates that financial interventions in households increase the quality of CoC and access to PHC facilities of MNH preventive and curative services (Okonofua, Ntoimo, Adejumo, Imongan, Ogu & Anjorin 2022). This systematic review further indicates that a PHC strategy has solved the challenges of skilled providers in sub-Saharan Africa and that many countries have trained and deployed midwives, nurses and community health workers to increase the PHC access to MNH services in the continuity pathways (Okonofua et al 2022). In Nigeria, deployment of more midwives increased new ANC visits by 42%, skilled attendance by 56%, PNC by 33%, and use of contraceptives by 66% (Okoli, Mohammed & Ejeckam 2016). In Ethiopia, deployed community HEWs exercise PHC strategies to increase the community participation, access

to and utilisation of MNH CoC services (Datiko, Bunte, Birrie, Kea, Steege et al 2019). The proportion of HDA and pregnant women forum meetings increased by 30% and 36% respectively within 18 months of interventions. Following these meetings, pregnant women identified and referred by health development leaders to health facilities increased from 42% to 85%, ANC attendance increased from 73.4% to 77.6% and skilled delivery attendance (SDA) utilisation increased from 76.7% to 83.3% (Datiko et al 2019).

A systematic review in sub-Saharan Africa also indicates that PHC strategy improved the access, utilisation and quality of MNH services through home visits, mobile outreach services, supportive supervisions, birth preparedness and complication readiness and combined interventions for MNH services along the CoC pathways (Okonofua et al 2022). Another systematic review in Africa shows that numerous approaches to delivering services to communities have been adopted. This includes reaching hard-to-reach areas through outreach programs to conduct pregnancy tests and encourage pregnant women to participate in the ANC. To avoid unnecessary deaths, complicated pregnancy situations are quickly referred to the hospitals (Nishimwe, Mchuhu & Mukamusoni 2021). However, the systematic review further indicates that the ANC, SDA and PNC interventions along the CoC pathways are inadequate and need planning before each stage of implementation to achieve universal coverage (Nishimwe et al 2021).

2.9.3.2 Quality care services

According to the WHO guideline, increased access to MNH care and increasing utilisation alone do not guarantee improved MNH outcomes (WHO 2016c). This guideline further states that along with expanding coverage of MNH services, improving quality and evidence-based care along the critical CoC pathways will have the greatest impact (WHO 2016c). The extent to which health care services are delivered to women in order to promote desired health outcomes is referred to as quality of care. In order to do this, health care must be safe, effective, timely, efficient, equitable, and people-centred (Tunçalp, Were, Maclennan, Oladapo, Gülmezoglu et al 2015). The delivery of evidence-based care, including respectful care, the creation of a supportive environment, the use of efficient non-clinical and clinical interventions, infrastructures, and the skills and attitudes of providers are all necessary for enhancing the quality of MNH during CoC (WHO 2016c).

Although decades of knowledge and experience exist to improve the quality of MNH care, policymakers and researchers at all country levels in both low- and middle-income countries face ongoing challenges. Therefore, MNH CoC service systems must meet quality criteria to achieve desired health outcomes by reducing preventable deaths and morbidity among mothers and their neonates (WHO 2016c). A fundamental concern for improving clinical outcomes is ensuring consistently high MNH CoC quality in healthcare facilities. According to the WHO (2018:2), quality of MNH care is defined as the extent to which MNH services increase the likelihood of timely appropriate care to achieve desired outcomes that are both consistent with current expertise and consider the preferences and wishes of individual women and their families. The relationship between health care quality and expected health outcomes is complicated. However, there is evidence that simply increasing the number of facilities is not sufficient to reduce maternal and neonatal mortality unless the quality of care is maintained (Glmezoglu, Lawrie & Hezelgrave 2016a:24). A study by Biadgo, Legesse, Estifanos, Singh, Mulissa et al (2021) confirms that from the total of 32 health facilities only 15.6%, 9.3% and 10.7% health facilities met the expected input, process and output MNH care quality standards, respectively.

Consequently, improving the quality of MNH CoC is an obligatory approach on the journey to achieve universal health coverage and the SDGs targets (WHO 2018). Provision of high impact quality MNH CoC ensures that health services delivered to clients and patients enhance expected outcomes of health and offer a system in which all mothers and neonates receive quality care through pregnancy to postpartum CoC periods. Women and neonates benefit from high-quality maternity and neonatal care. Part of providing quality MNH CoC includes access to essential obstetric care during SBA by competent and skilled providers that is effective in reducing maternal and neonatal mortalities and morbidities (Gülmezoglu et al 2016a:28).

2.9.3.3 Continuum of care strategy

An effective CoC connects high impact maternal and neonatal interventions throughout pregnancy to postnatal periods and building upon their natural interactions (Oh et al 2020). The linkage between the home, primary facilities and hospitals should be strengthened to assure the appropriate care to be accessible because delays in care lead to complications and maternal and neonatal deaths (Oh et al 2020). The CoC approach ensures continuity

of care throughout pregnancy, childbirth and the postnatal period (Oh et al 2020; Iqbal, Maqsood, Zakar, Zakar & Fischer 2017). It is also an important approach for viewing both neonates and mothers as a collective rather than separate entities. Maternal and child health policies and interventions, predominantly in sub-Saharan Africa, have often viewed mothers and their neonates as a separate entity rather than as a collective due to this large gap in the existing MNH interventions (Oh et al 2020).

Figure 2.1 below provides a schematic presentation of the conceptual framework of this study.

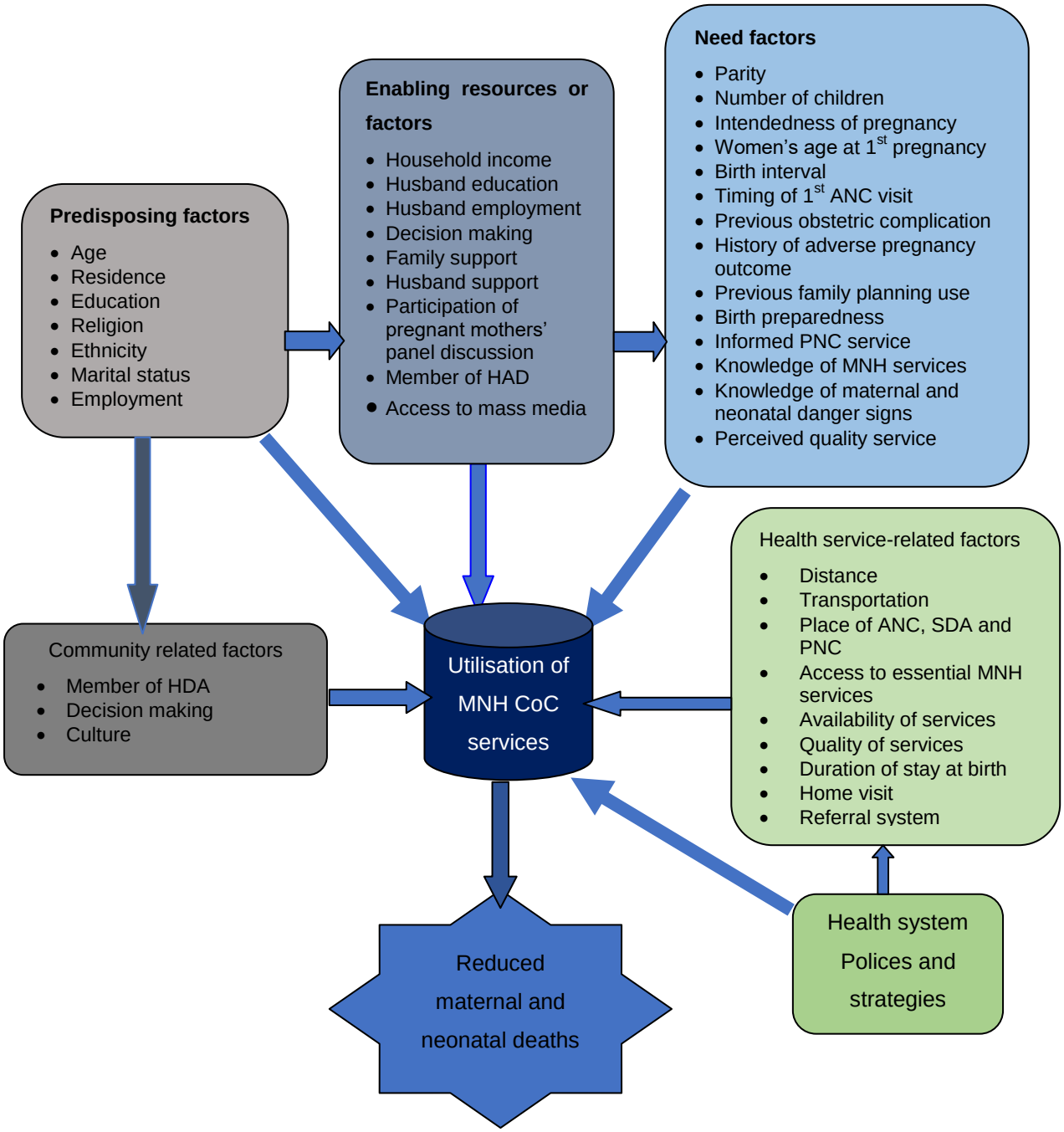

Figure 2.1 Conceptual framework

Source: Adapted from Andersen's health behaviour model (Andersen 1995) and PHC model (WHO 1978) and the literature (Addisu et al 2022; Asratie et al 2020; Asresie et al 2019; Atnafu et al 2020; Dahab & Sakellariou 2020; Dominic et al 2019; Ftwi et al 2020; Hamal et al 2020; Haile et al 2020; Manote & Gebremedhin 2020; Marsack-Topolewski & Weisz 2020; Singh et al 2016; Tizazu et al 2021).

2.10 CONCLUSION

The review of literature covered pertinent sources to conceptualise the study. The review dealt with concepts of MNH CoC, historical trends of CoC services, determining factors for MNH CoC service utilisation, and barriers that influence utilisation of MNH CoC services from skilled providers. In addition to the literature review, Andersen's Health Behaviour Model and the PHC model were selected and conceptualised regarding the utilisation of MNH CoC services. Finally, a conceptual framework was developed to frame the study.

The literature review concluded that, across different studies, there were variations of completion of MNH CoC services. There were disagreements and disparities in the factors affecting MNH CoC services. There were also variations among barriers to MNH CoC services utilisation across different studies. These differences need to be explored in the specific context to design an appropriate model of a continuum of care to reduce maternal and neonatal deaths.

The next chapter presents the research design and methodology of the study.

CHAPTER 3:
RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter provides a detailed presentation of the research methodology including the paradigm, study design, study settings and study phases (quantitative, qualitative, and model development process). Mishra and Alok (2017:2) advise that a research methodology is a process for systematically solving research problems following scientifically accepted principles, procedures, and practices. In this study, the research techniques supported and guided the entire process and addressed the methodological choice and analysis perspectives.

The first section of the chapter describes the various research designs considered suitable for the study. The research designs used were mixed methods, incorporating both quantitative and qualitative components that were descriptive, exploratory and contextual, but were clearly described in the chapter.

The second section discusses and clarifies issues related to the research methods, namely the study setting, the population, the samples and sampling procedures, the process and instruments of data collection and data analysis. The various options for ensuring validity and reliability in the quantitative aspect and for ensuring trustworthiness in the qualitative area are described. Research ethics were ensured by considering the rights of study institutions and participants and maintaining scientific integrity.

3.2 RESEARCH OBJECTIVES

The present study had five specific objectives. The first three objectives were to be addressed by the quantitative phase, while the fourth objective was addressed in the qualitative phase. The fifth objective was addressed in the integrative phase. To reiterate, these objectives were:

1. To determine and describe the magnitude of the MNH CoC utilisation in Assosa Zone, North Western Ethiopia

2. To analyse and describe the current maternal and neonatal CoC services in the study area
3. To identify factors that determines the utilisation of the MNH CoC in the study area
4. To explore and describe barriers that hinders the utilisation of the maternal and neonatal CoC in the study area
5. To develop a model of the CoC for reducing maternal and neonatal mortality in North Western Ethiopia

3.3 RESEARCH PARADIGM

Research paradigms are philosophical viewpoints that influence scientific research phenomena. These paradigms are lenses that guide the process and actions of the entire research activity (Aliyu, Bello, Kasim & Martin 2014; Kumatongo & Muzata 2021) but most scholars agree that all paradigms have their own strengths and weaknesses. For example, positivist and interpretivist paradigms have contradicted each other for philosophical understanding of reality or truth (Aliyu et al 2014; Creswell 2009:4; Kumatongo & Muzata 2021; Okeke & Van Wyk 2015:25; Wilson 2013:14).

In the philosophical debate, the pragmatist paradigm emerged and solved the practical world problems in the real world rather than being built on assumptions about the nature of knowledge (Creswell 2014; Shannon-Baker 2016). In practice, this paradigm does not prefer either subjectivity or objectivity. It is dedicated to many ways of understanding because there are multiple realities (Shannon-Baker 2016). The knowledge from multiple realities therefore grows through an integration of mixed methods in research (Creamer 2018:96). In pragmatism, reality is not static and changes at every turn of events (Kaushik & Walsh 2019). Moreover, in a pragmatic worldview, the assumption is that collecting different sources of information best delivers a more complete knowledge of a research gap than any quantitative or qualitative data alone (Creswell & Creswell 2018:54).

Therefore, this study used a pragmatist paradigm in a mixed methods design to create the access for multiple data sources, various assumptions, diverse worldviews, and several forms of data collection and analysis (Creswell & Creswell 2018:48).

3.4 RESEARCH METHODOLOGY

The research methodology section discusses both the research design and the research methods of the study.

3.4.1 Research design

A research design is a “blueprint for maximising control over factors that could interfere with a study’s desired outcome” (Pandey & Pandey 2015:18). It is a plan that guides the researcher to achieve the goals of a research study (Nirmala & Silvia 2011:68). Asenahabi (2019) also explains that research design translates a research problem into data for analysis to answer the research questions. Bryman (2016:40) explains that research design provides a framework for collecting, analysing and interpreting data. Furthermore, this study pointed out that research design is the preparation of parts that need to be included to answer the research questions (Jha 2014:180; Sileyew 2019). The research design for this study had to be appropriate from the beginning of the research journey. The nature of the research problem that will be studied can determine the study design (Tabuena 2020) and the choices of the research design assist investigators to align the entire research process (Gray, Grove & Sutherland 2017:107). There are four types of mixed method research designs. These are convergent, explanatory sequential, exploratory sequential, and several complex mixed method designs (Creswell & Creswell 2018:299).

The study used a convergent mixed methods design based on a cross-sectional study design where quantitative followed by qualitative methods were implemented. These research approaches were selected because they are ideal for answering research questions and achieving the objectives of the study. ODwyer and Bernauer (2014:36-37) mention that complex phenomena can be easily understood when studied using both quantitative and qualitative approaches, as these methods complement each other. Mixed methods research designs respond to research questions more effectively than single methods research designs (Dawadi, Shrestha & Giri 2021:27; Guest & Fleming 2015:582). Within mixed method research, the quantitative part is used to quantify a study phenomenon and help to generalise to the entire population based on collection of fresh data from the sample (Park & Park 2016:4). On the other hand, the qualitative part helps to

obtain a detailed and thoughtful account of the issue under investigation (Rahi 2017). This can be enhanced by convergence (triangulation) and complement the same phenomena with different types of data that were collected based on different perspectives.

According to Brink, Van der Walt and Van Rensburg (2018:411), the research process can be conducted in different phases. The quantitative phase in this study empirically investigated the analysis and description of the current maternal and neonatal CoC services and determined the magnitude of the use of MNH CoC service utilisation, followed by identifying factors that determine the utilisation of MNH CoC. The qualitative phase explored and described barriers that hinder utilisation of MNH CoC services in the Assosa Zone, North-West Ethiopia. Finally, a CoC model for reducing maternal and neonatal mortality in North-Western Ethiopia followed.

3.4.1.1 Quantitative research design

The goal of quantitative research is to provide quantifiable data that can be used to generalise the results to the population from which the sample is drawn (Asenahabi 2019). This design is deeply rooted in positivism, which assumes that all phenomena among study participants can be studied objectively (ODwyer & Bernauer 2014:45; Parahoo 2014:42). In positivism, there is a single reality that is measurable and unchangeable (Rahman 2017). Furthermore, Rahi (2017:2) argues that in a quantitative study design, a researcher collects a large sample to obtain the evidence required for the study. The study used this design to analyse and describe current MNH CoC services, determine and describe the extent of MNH CoC use, and identify factors influencing CoC use in the Assosa Zone in the Northwest Ethiopia.

3.4.1.2 Qualitative research design

Although the study used a mixed methods approach, a qualitative research approach was also considered in this study. A qualitative approach is based on a subjective interpretation of phenomena and is mainly used to describe the lived experiences of study participants (Rahman 2017; Parahoo 2014:55). In contrast to quantitative studies, qualitative studies assume that reality varies depending on the individual's perception (ODwyer & Bernauer 2014:26).

A qualitative approach is appropriate for this study as the researcher seeks to better understand the lived research experiences (Campbell, Taylor & McGlade 2017:52). As Parahoo (2014:484) notes, the qualitative results of this study were also used to further expand on the findings of the quantitative part of the study. The need for a qualitative part of the study construct is highlighted due to the dynamic and sensitive nature of human behaviour and the study topic (Silverio, Sheen, Bramante, Knighting, Koops, Montgomery, November, Soulsby, Stevenson, Watkins, Easter & Sandale 2022). In addition, the qualitative part of the study was used to examine participants' detailed responses regarding the barriers hindering the use of the MNH CoC in Assosa Zone, Northwest Ethiopia. This phase was used to collect detailed information which was helpful in the development of a CoC model for reducing maternal and neonatal deaths in North Western Ethiopia.

3.4.1.3 Mixed methods research design and a justification of its use

Johnson and Christensen (2012:32) note that since the 20th century, numerous scholars have advocated the importance of mixing quantitative and qualitative research in a single study. Therefore, the importance of mixed methods design has gained wide recognition in the recent past, as a single study design may not help researchers produce informed and detailed analyses of certain phenomena. A mixed methods study allows a researcher to answer various research questions under conditions that a single method cannot (Guest & Fleming 2014:582). Furthermore, Schoonenboom and Johnson (2017) note that mixed studies provide the best picture of the research problem under study by combining quantitative and qualitative methods.

The use of mixed methods in this study is justified because the use of qualitative and quantitative methods helped the researcher to minimise the limitations of each method to obtain valid and reliable results (McCusker & Gunaydin 2015:541). Using a mixed methods approach allows the researcher to leverage the strengths of both quantitative and qualitative methods (Morse & Maddox 2014:2). The integration of qualitative and quantitative methods allows the researcher to provide a comprehensive picture of the study (Creswell 2015:2).

In mixed method research, integration is required during timing of data collection: either the quantitative and qualitative phases take place sequentially or concurrently (Schoonenboom & Johnson 2017:113-115). For this study, data collection was conducted using a concurrent method (at the same time) where data were collected in the quantitative phase followed by the qualitative phase. The concurrent mixed methods were used to assess (Creswell & Creswell 2018:302) the continuity of MNH in the study area. The quantitative phase investigated existing services for the utilisation of MNH CoC, the magnitude of MNH CoC service utilisation, and factors determining the CoC use among women, while the qualitative phase explored the barriers to MNH CoC utilisation (Figure 3.1).

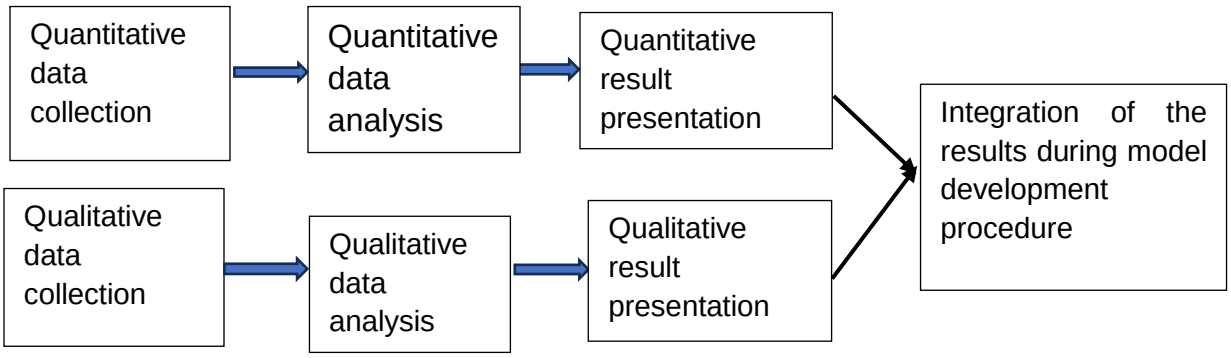

Figure 3.1 A diagram of convergent (concurrent) mixed method study design

3.4.1.4 Cross-sectional research design

Polit and Beck (2012:118-136) indicate that an entire population, or a subset thereof, is selected for observation in a cross-sectional study design. From these selected individuals, data are collected at a specific point in time to measure the association between an exposure and outcome and help answer questions on magnitude or prevalence. In this study, data were collected from women who had given birth in the past nine months to describe the current maternal and neonatal continuum of care services, determine the extent to which maternal and neonatal CoC was utilised, and the factors that determine the use of CoC in Assosa Zone, North Western Ethiopia.

3.4.2 Research method

Polit and Beck (2017:41) consider a research method to be the researcher's procedure to structure the investigation and collect and analyse data. Igwenagu (2016:4) explains that a research method is the way in which the study will be conducted, and it sets out the

proposed approaches of investigation utilised in the study. It is an approach or strategy used by researchers to systematically realise responses to the research problem (Kothari & Garg 2019:6).

The quality of research depends on the methods used. The research methodology includes sampling procedures to be followed as well as methods of data collection, analysis and interpretation. Appropriate research methods guide researchers to select samples and collect, analyse and interpret data to produce valid and reliable results (Bryman 2012: xxxii). The research methods in this study included subtopics such as study setting, population, sample, sampling method, sample size, data collection, data analysis, as well as ensuring validity and reliability in the quantitative phase and trustworthiness in the qualitative aspect and ethical considerations. These are unpacked below.

3.4.2.1 Study setting

The Benishangul-Gumuz Regional state is one of the nine administrative regions of Ethiopia located in the Northwest of the country. It is one of the four pastoral regions in the country with an estimated area of 50,381 square kilometres (UNICEF 2019). Assosa is one of the region's three administrative zones and has nine administrative districts. The zone has 19 public health centres and a primary hospital that provides CoC for mothers and neonates. In 2021, the total population of the zone was 441,551 based on the 2007 Central Statistics Agency (CSA) census forecast and 15,057 women were expected to give birth in 2021 (Benishangul Gumuz Regional Health Bureau (BG RHB) 2020).

For this study, Assosa Zone was selected purposively and three administrative districts namely Abrahamo, Ura and Bambasi from the Assosa Zone were randomly selected. The study was conducted in all public health facilities of the selected districts in the zone.

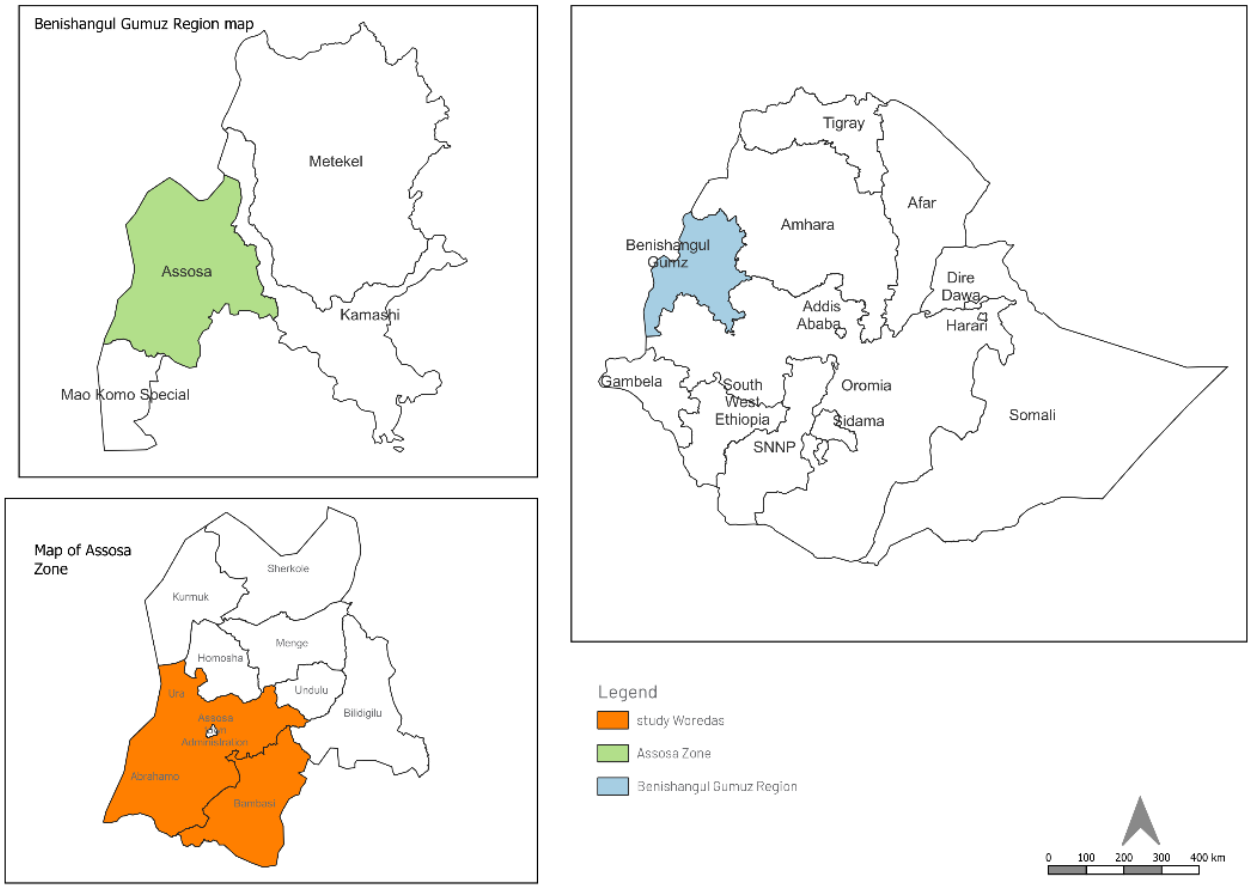

Figure 3.2 Map of the Benishangul-Gumuz regional state, showing the locations of the woredas studied

Sources: United Nations Office Humanitarian Coordination Affaires humanitarian data exchange (Hdx): https://data.humdata.org/dataset/cod-abeth? Map produced by Desalegn Getaneh.

3.4.2.2 Population

Polit and Beck (2012:274) define the population of a study as the total number of cases to which the researcher wants to generalise the results. Polit and Beck (2012:274) describe a population as elements (events, objects, substances or people) that meet the sampling conditions for inclusion in a study, also known as the target population. As shown in Figure 3.1, there are three categories of populations in research: the general population, the target population, and the accessible population.

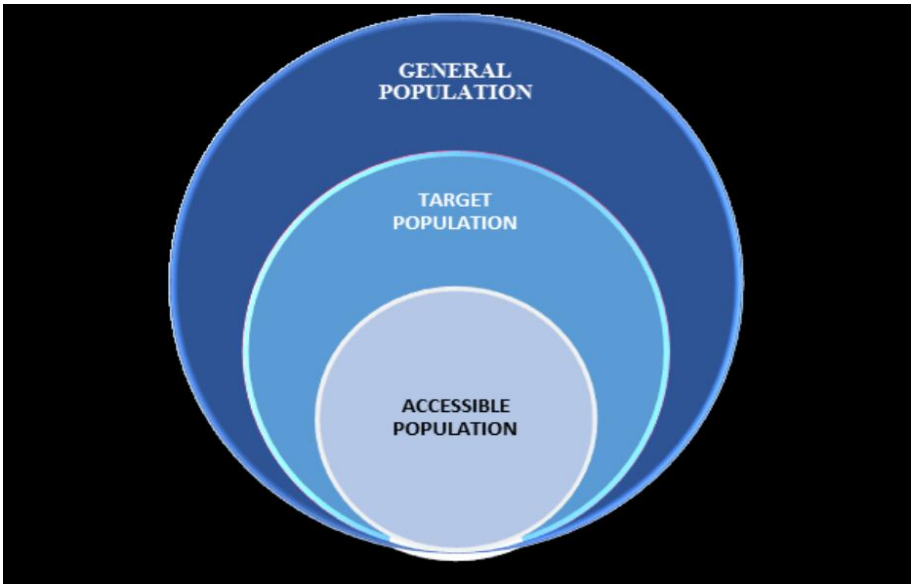

Figure 3.3 Population and sample

Source: Adapted from Asiamah, Mensah and Oteng-Abayie (2017:1611).

A general population is a specific group of people who share the same characteristics or elements and are the focus of a study (Grove, Burns & Gray 2013:351; Shukla 2020). Regarding this study, the total population of the study included all women who had given birth in the last nine months in Assosa Zone, northwest Ethiopia.

According to Polit and Beck (2017:744), a target population is the total population in which a researcher is interested. It has all the inclusion criteria, and the researcher wants to generalise the study results to them. The target population of this study included all women who had given birth in the last nine months in three districts of Assosa Zone, northwest Ethiopia.

The accessible population refers to participants drawn from the target population that the researcher accesses to provide data for the study on the days data are collected (Shukla 2020; Polit & Beck 2017:307). The accessible population in this study included all women who had given birth in the last nine months and were selected for the quantitative study through sampling technique from three districts of Assosa Zone in northwestern Ethiopia. For the qualitative study, the accessible population consisted of HDA leaders, religious leaders, kebele leaders, women who had given birth in the last nine months, HEWs, health care providers, heads of health facilities, maternal and child health officers, and experts.

3.4.2.3 Sampling and sampling techniques

Sampling is the process of selecting study participants from whom data should be collected (Rahman, Tabash, Salamzadeh, Abduli & Rahman 2022). Since it is not realistic to conduct a census in most cases due to various reasons, taking a sample is essential. Jha (2014:206) points out that sampling saves time, money and manpower and is easy to use.

Sampling is the process of selecting respondents from the general population to make inferences about the population (Taherdoost 2016:19). The accuracy of the inference and better generalisability is obtained when the sample is representative of the population. A sample is said to be representative when the characteristics of the sample are similar to those of the entire target population and an adequate sample is drawn from the entire population (Alvi 2016). As explained by Gray et al (2017:515), sampling is selecting a group of individuals with similar characteristics. In order to have respondents for this study, the researcher had to select the sampling techniques that were suitable for the topic under study (Sarwono 2022:64).

In general, there are two types of sampling methods (Etikan & Bala 2017): probability sampling and non-probability sampling. Probability sampling is a sampling method with a non-zero probability of being selected as a sample (Jha 2014:189). Non-probability sampling is a sampling technique in which the researcher intentionally selects participants based on parameters that the researcher deems applicable. Campbell et al (2017:38) argue that for research that requires representativeness, probability samples are the best option, whereas non-probability samples are mainly applicable in qualitative research.

Because the study used mixed methods research, appropriate sampling techniques were considered for both quantitative and qualitative data. This, in turn, enabled the researcher to get a clear picture of the research problem under study in order to develop the intervention model based on the findings/results. The sample of respondents for the quantitative data was determined using a probability sampling method. Among the probability sampling methods, a simple random sampling method was used.

3.4.2.3.1 Sampling for quantitative data

This study used a probability sampling method that gives people or objects an equal chance of being selected for each element in the population (Jha 2014:195, Rahi 2017:5; Nikolopoolou 2022). A representative sample helps the researcher to avoid sampling bias, which is the main advantage of simple random sampling, whereas using such a method is costly, complex and time-consuming, especially when respondents are geographically dispersed (Alvi 2016:17). Alvi (2016:17) also points out that the difficulty of obtaining a complete list of items is among the limitations of a simple random sample in a context such as this study.

A sample of respondents was therefore obtained through the probability sampling methods and procedures as found to be appropriate for this study. According to Mishra and Alok (2017:2), all sampling units have non-zero probability of being included in the study. Among the probability sampling procedures, a multistage sampling technique was employed to select study participants. Multistage sampling is the sampling technique that uses two or more sampling techniques (Alvi 2016:21).

First, three out of nine districts of the Assosa zone were randomly selected using a lottery. Second, all public health centres from the three districts were selected. Third, the sampling frame of all women who had given birth in the last nine months at each health centre was obtained from the list of EPI registration books, under-five clinics, and family planning clinics. After obtaining the sampling frame, simple random sampling was used by means of a systematic random sampling method to select respondents from each health centre to achieve the required sample size. Finally, every second woman who had given birth in the nine months prior to the present study been selected until the planned sample size was reached, starting with the first woman in the sampling frame list. The sample size in each public health centre was assigned based on probability proportional to the population size.

3.4.2.3.2 Sampling for qualitative data

For the qualitative data, the study participants were selected using a purposive sampling procedure. Purposive sampling is one of the non-probability sampling methods where the researcher selects samples based on some criteria that meet the requirements of a particular study (Alvi 2016; Bacon-Shone 2015:51). The present study used purposive

sampling to understand the study participants' views and experiences regarding the utilisation of the recommended CoC from the recognised health facilities. Participants were selected based on previous MNH CoC use experiences from recognised facilities by women who had given birth in the last nine months, HDA leaders, religious leaders, Kebele leaders, HEWs, health care providers, health facility leaders, and maternal and child health officers and experts who additionally balanced responses until data saturation was reached.

3.4.2.4 Sampling criteria

Various sampling criteria were used to identify the respondents and participants in the study. The following inclusion and exclusion criteria were used to select respondents for the quantitative data.

3.4.2.4.1 Inclusion and exclusion criteria used to select the respondents and participants for the quantitative and qualitative phases

Inclusion criteria: All women who had given birth in the last nine months of the study, regardless of place of birth, and who lived in the selected districts of Assosa Zone, northwest Ethiopia. Kebele leaders, HDA leaders, HEWs, religious leaders, midwives, facility managers, officers and experts were also included in the qualitative study.

Exclusion criteria: All women who had given birth beyond the past nine months of the study in Assosa Zone, or any other place. Women who had given birth less than nine months of the study period irrespective of their place of birth in Assosa Zone, North Western Ethiopia were also excluded.

3.4.2.5 Sample size

Sample size is one of the important parameters that need to be seriously considered while planning research (Anthoine, Moret, Regnault, Sibille & Hardouin 2014:2). Accordingly, the sample size should be neither extremely small nor unreasonably large (Andrade 2020). An ideal sample should be the one that fulfils the requirements of efficiency, representativeness, reliability and flexibility (Taherdoost 2017). A sample size generally depends on the effect size, estimated measurement variability, desired statistical power,

significance level and whether a one- or two-tailed statistical analysis is applied (Memon, Ting, Cheah, Thurasamy, Chuah & Cham 2020).

The sample size of this research was determined by various aspects related to the study. Daniel (2015:32-33) points out that the objectives of the study, the type of population, the available resources and the type of research design are among the factors that need to be considered when deciding on the sample size.

In mixed methods research, it is important to look for a sample size that meets the needs of both quantitative and qualitative research.

3.4.2.5.1 Sample size for the quantitative phase

Since the goal of quantitative research is primarily to provide results that can be generalised to the entire population (Bryman 2016:163), a moderately large number of representative respondents is required. Burns and Grove (2017:542) add that a sufficient or relatively large sample size is required in quantitative study to generalise the findings from the sample to the entire population. Quantitative sample size generally depends on the effect size, estimated measurement variability, desired statistical power, and significance level (Memon et al 2020). To this end, the sample size was calculated using a single population proportion formula to determine the sample size for the quantitative research component.

$$n = \frac{(Z_{a/2})^2 PQ}{d^2} * \text{Deff} \qquad \text{where}$$

n= desired sample size when the population is > 10,000

$Z_{a/2}$ = 1.96 = standard normal deviation and the required confidence level

P = 0.372 estimated characteristics of the target population. According to recent studies, the utilisation of complete MNH CoC services in Ethiopia ranging from 12.1-37.2% (Atnafu et al 2020; Emiru et al 2020; Tizazu et al 2021). To get the larger sample size, the larger coverage (37.2%) of complete maternal CoC was taken (Tizazu et al 2021).

Q = 1-P = 0.628

d = 0.05 (sampling error)

Deff = 1.5 = design effect

Using the above formula, the calculated sample size was 538. After calculation, a 10% non-response rate was added to the sample size. Therefore, the minimum sample size for this study was 592.

To determine the sample size of women who had given birth before nine months and received services (EPI, family planning and under-five clinics) in the health facilities, proportional allocation is unpacked in Table 3.1 below.

Table 3.1 Sample size for quantitative data in the health facilities of Abrehamo, Ura and Bambasi districts, Assosa Zone 2022

S. No	Health facility name	Total women visited under 5 clinic, family planning clinic and EPI clinic during February-March 2022	Proportional allocation of sample size
1	Nebar komeshiga	80	44
2	Kushmengel	87	48
3	Mender 46	61	34
4	Abrahamo	91	51
5	Ura	86	47
6	Gematsa	51	28
7	Bambasi	540	299
8	Selga 22	72	40
	Total	1068	592

3.4.2.5.2 Sample size for the qualitative data

It is difficult to determine the sample size of qualitative research in advance because data must be collected until no new information is available. When no new data emerges from the informants on the topic of interest or there is redundancy in the previously collected data, this is referred to as saturation (Patten & Newhart 2018:101). Because different qualitative researchers propose different numbers for sample size, Beitin (2014:2) argues that those engaged in qualitative research do not agree on the ideal sample size. Therefore, the sample size for the qualitative aspect was not specified in this study. Data saturation was used to determine the sample size, meaning that data were collected until saturation occurred (Beitin 2012:2). Accordingly, the sample size was determined by data saturation and a further consideration of other factors beyond saturation whereby the

sample size provided data to explore and describe barriers that hinder utilisation of all recommended CoC from the recognised health facilities.

Accordingly, 18 women who had given birth in the last nine months, 13 HEWs, three WDA leaders, 14 health workers (midwives, maternal and child health (MCH) department heads, technical heads, facility heads and experts), three kebele leaders and one religious leader represented the sample for this study, and these were determined by data saturation.

3.4.2.6 Data collection method(s) and procedure

Data collection is the process of systematic gathering and measuring information on variables of interest to answer the defined objectives (Kabir 2016). It is the process of capturing quality of evidence to produce accurate or valid study outcomes or findings (Sadan 2017). Data collection starts with determining the required data, selecting the method of collection, developing the collection instrument, validating the instrument, selecting the sample from the study population and finally the collection of quality data (Kabir 2016). In the present study, the study data included both non-numerical (qualitative) and numerical (quantitative) information collected while ensuring scientific procedures (Creswell & Creswell 2018; Neuman 2014:9). In convergent mixed research method design, collection of the qualitative and quantitative data concurrently is crucial (Creswell & Creswell 2018).

An interview-administered questionnaire (structured) for quantitative data collection and an in-depth interview guide for qualitative data collection were prepared and used to collect data from the respondents and participants.

3.4.2.6.1 Data collection method(s) and procedure for the quantitative phase

Research questionnaires are tools that have lists of questions to be responded to by the study respondents (Nayak & Singh 2015:87). According to the type of participants, research questionnaires can either be self-administered or interviewer administered (Jacobsen 2017:129). Compared to self-administered questionnaires, interviewer-administered questionnaires are better for collecting complex information, but a closed-ended structured questionnaire does not allow flexibility for the researcher (Godwill 2015:83).

In this study, structured questionnaires for quantitative data were prepared according to the study objectives and the context of the study area by review of diverse literature and the conceptual framework (Figure 2.1). Primary Health Care and Andersen's Health Behaviour models were primarily used to prepare the structured tools. The questionnaire was prepared in simple words and in a coherent manner. It was written in English and translated into Amharic; and three language translators took over the back translation. During preparation of the questionnaire, subject matter experts and experienced survey professionals were consulted. Pretesting was carried out for 5% of the sample size in the same setup among women who were not included in the study prior to the actual data collection process. After pretesting, the analysis was done, and then minor correction was made accordingly. During pretesting, the presence of minor inconsistencies and a few difficulties were recorded, and modifications made. The average time for conducting individual interviews was also determined during pretesting. Quantitative data were collected by 15 enumerators through a structured and pre-tested questionnaire using face-to-face interview techniques.

3.4.2.6.2 Data collection method(s) and procedure for the qualitative phase

To collect qualitative data, an in-depth interview guide was prepared, guided by the conceptual framework (Figure 2.1), PHC (WHO 1978) and Andersen's Health Behaviour model (Andersen 1995). The interview guide was prepared in simple words and in a coherent way. It was prepared in the English language and translated to the Amharic language; and three language translators did the back translation. The interview guide was pretested on three participants prior to the actual data collection. Following pretesting, minor modifications of the interview guide were made and the average in-depth interview time (between 25 to 55 minutes) was determined. Then, the in-depth interview was administered individually for women who had given birth in the past nine months in the study area, health care providers, HEWs, experts, heads of facilities, HDA leaders, religious leaders, and Kebele leaders to balance the responses.

The primary question for the in-depth interview was "Tell me what are/were the barriers that affected or influenced you not to use all the recommended MNH CoC (ANC1-ANC4, skilled delivery and PNC) services?" This leading question was administered to women who had given birth in the past nine months prior to this study. For other study participants

(health care providers, HEWs, experts, head of facilities, HDA leaders, religious leaders and Kebele leaders) the primary question for the in-depth interview was “Tell me the reasons or barriers that affect or influence women not to use all recommended MNH CoC services?” The leading question was administered to the study participants with other probing questions and was posed until it reached the saturation level.

3.4.2.7 Data analysis method

3.4.2.7.1 Quantitative data analysis

The collected data were cleaned, edited, coded and entered into a computer through SPSS 27 version software and analysed. Descriptive analysis was performed, followed by bivariate and multivariate analysis. Bivariate analysis was performed to examine the association using a chi-square test. In addition, the crude/adjusted odds ratio and 95% confidence intervals were calculated following the chi-square test to test the strength of association and significance level, respectively.

All variables that have $P < 0.2$ were selected as candidate variables and transported into a multivariate logistic regression analysis to identify the independent predictors of the dependent variable, using a backward stepwise method to adjust for confounding factors. The model was tested using the Hosmer-Lemeshow fitness test. Text, percentage, AOR, COR, 95% CI, P value, tables and graphs were used to present the results.

3.4.2.7.2 Qualitative data analysis

The interviews were recorded using digital recorders and field notebooks. Data management was accomplished through organising and preparing for analysis. The data were transcribed and coded and the individual interviews typed verbatim for analysis.

Thematic analysis was used to analyse the exact transcripts for both manifest (overt) and latent (hidden) content to indicate the key themes and categories found in the data. Thematic data analysis was involved in various processes such as coding, categorising and making sense of the essential meanings of the phenomenon. The analysis followed Colaizzi’s seven steps of data analysis and used direct quotation marks to set off units of meaning. Colaizzi’s seven steps of analysis are as follows: reading all contents of the interview, statement extraction, formulating meanings, clustering themes, preparing the

fundamental structure, and returning to interviewees if there was a need for further information or clarification (Praveena & Sasikumar 2021).

3.4.2.8 Ensuring rigour

Validation in mixed method research requires applying more than the traditional scientific principles of rigour. It requires overall strategies to ensure the quality of the work that will be more explicit to draw meaningful and accurate conclusions from the data collected using multiple research methods and different skills (Eckhardt & DeVon 2017). Burns and Grove (2017:330) add that studies are generally equivalent to faithfulness. In this study, reliability, validity, trustworthiness, and generalisability were applied to ensure rigour of the study.

Validity of the study means the researcher can draw inferences from the findings gained from the sample to the general population. This can be achieved when the instrument's measurement validity and the design validity are consistent and effective in the design, implementation, and reporting (Eckhardt & DeVon 2017; Fàbregues, Molina-Azorin & Fetters 2021). According to Bowling (2014:17), validity is an evaluation of whether an instrument estimates what it anticipated to measure. The researcher designed different mechanisms to ensure validity of the instrument. During this study, content, internal, face, construct and external validity were ensured. In addition, the researcher used mixed method validity questions that were applied to test whether the instrument could measure what had been planned in the objectives and the integration of the methods during the instrument development (Brink et al 2018:152).

To address the content validity, the instrument contained the questions that address all components in relation to the objectives of the study. Brink et al (2018:152) argue that an instrument clearly shows all segments of the variable to be estimated and must be determined before data collection. In this study, to ensure content validity, the instrument was prepared by reviewing diverse relevant literature (used to assure also construct validity), guidelines and previous instruments in similar studies. The prepared questionnaire (instrument) was given to different experts and modifications were done according to their comments. This system was also to ensure the face validity where the instrument contents were relevant to the study to be explored.

According to Schneider, Whitehead, LoBiondo-Wood, and Harber (2016:402), internal validity is the extent to which the effect of the dependent variable is the result of the independent variable to the exclusion of other additional variables. External validity is the extent to which findings from the sample can be used to generalise to the population or other settings. To ensure internal and external validity, the sample size calculation in this study was based on statistical assumptions and study participants were randomly selected to ensure representativeness of the study; that the standard data collection tool had been pre-tested; and multivariable analysis was performed using backward stepwise regression to reduce confounding factors.

Reliability is an important prerequisite of the data collection and findings of any research process. According to Creswell and Creswell (2018:274), reliability deals with the consistency, dependability and replicability of the results obtained from a piece of research. Pandey and Panday (2015:21) add that reliability refers to consistency throughout a series of measurements. The present study assured its reliability through pre-testing the instrument with 5% of the respondents that were not included in the actual sample. The reliability of the study was also assured using triangulation by using data collection methods from different sources, using in-depth interviews and questionnaires in face-to-face interviews.

Trustworthiness is used to establish scientific rigour. Lincoln and Guba (as cited by Forero, Nahidi, De Costa, Mohsin, Fitzgerald et al 2018:3) created stringent criteria known as credibility, dependability, confirmability, and transferability. To assure the trustworthiness of this study, the researcher used probes (to obtain information of the lived experiences of participants) during data collection, clearly described and direct quotations, and triangulation of data sources to improve credibility.

Each step of the research process (data collection, analysis and interpretation) was documented and described to ensure dependability (repeatable findings over time). All processes of data collection and analysis were correctly documented for the purpose of extending the confidence that other researchers would confirm the results (confirmability). Ghafouri and Ofoghi (2016:1917) define confirmability as the degree to which others can confirm the results.

To ensure the transferability of the results, this study carefully described the context in which the study was conducted and followed the planned research processes. As Bryman (2012:49) explains, the research findings can be applied in different contexts in which the data were collected.

3.4.2.9 Ethical considerations

Every scientific investigation should follow internationally and locally accepted ethical principles. According to the WHO (2019b), persons and organisations that undertake research activities shall do so in good faith and respect the cultural norms and dignity of participants. Researchers argue that research procedures should adhere to professional, legal and social obligations to the study participants (Oates, Carpenter, Fisher, Goodson, Hannah et al 2021). The Department of Health (2016:16) adds that all research activities should ensure ethical considerations such as respecting the rights of study institutions, the rights of respondents/participants and ensuring scientific integrity. Furthermore, during data collection, verbal consent was obtained from each respondent/participant after clearly explaining the aim of the study. Respondents/participants were also informed of their right to withdraw at any time if they encountered any inconvenience during data collection. In addition, the confidentiality of the information was guaranteed.

In this study, ethical approval was obtained from the Research Ethics Review Board of the College of Human Sciences of UNISA with NHREC registration number Rec-240816-05 and CREC reference number 13112112_CREC_CHS_2021. The letter of support was sent by the UNISA-Ethiopian Center to the Benishangul Gumuz Regional Health Bureau (BGRHB). The BGRHB has written a supportive letter to the districts, and all districts have also written supportive letters to all health facilities. Finally, informed consent was obtained from each respondent/participant before conducting the data collection process.

3.4.2.9.1 Protecting the rights of the study institutions

Any research involving human beings must be approved by an authorised ethics committee before investigating (Oates et al 2021). Ethical approval for this study was obtained from the University of South Africa's College of Human Sciences Research Ethics Review Committee (UNISA) with NHREC registration number Rec-240816-05 and CREC reference number 13112112_CREC_CHS_2021. A written letter of cooperation or permission was

sought from BGRHB and respective districts. At each level, the aim of the study was explained for health facility directors, district directors and community representatives to obtain further permissions.

3.4.2.9.2 Respondents'/participants' rights

During the study the rights of the participants were respected at all times by minimising their risks, fair selection of the study respondents/participants, obtaining informed consent, respecting the dignity of human beings (respondents/participants), and maintaining privacy and confidentiality.

3.4.2.9.3 Beneficence

Ethically accepted investigation minimised possible risks (by both preventing potential harm and minimising the negative impact) and maximising the potential benefits of the research (Oates et al 2021:9-10). This study safeguarded the safety of the respondents/ participants by ensuring that respondents/participants would not be exposed to any harm while participating in the research. This study data were collected at facility level when the participants came to the health facility for the purpose of the EPI vaccination, under-five clinic and family planning clinic and maximum care was applied during the interviews. Even though the participants could not receive direct benefits, the study created awareness of the utilisation of the continuum of maternal and neonatal care to improve their and their newborns' lives.

3.4.2.9.4 Informed consent

Informed consent is usually in the form of a document signed by the subject who relays all appropriate risks and benefits and applicable research information to the respondents/participants, allowing the individual to take an informed decision concerning participation. Following this, the respondents/participants were given the opportunity to withdraw from participation at any time without any reason (Xu, Baysari, Stocker, Leow, Day & Carland 2020). In this study, the information letter was read to the respondents/participants to inform them about the objectives of the study and allow them to agree to participate. Respondents' participation in the study was based on full consent and the respondents/participants had the right to withdraw at any time without any penalty.

3.4.2.9.5 Anonymity, confidentiality, and privacy

According to the WHO (2019b:36-39) anonymity refers to keeping any identifying information (name, address, telephone number, if known) of respondents safe and stored separately from the interview instrument until after confirming the data. Confidentiality refers to keeping secret any identifying responses of the respondents/participants by not exposing them to other persons, reports, papers or public forums (Akaranga & Makau 2016). In this research, the privacy of the participants was assured by arranging secure areas where participants shared their lived experiences and other sensitive issues. The confidentiality was assured by telling them that the data were collected without any names, phone numbers and other identities. The collected data were kept in a safe place and not shared with any other persons.

3.4.2.9.6 Justice

According to Oates et al (2021), justice is defined as the benefits and risks distributed equally or fairly or treating respondents/participants in appropriate ways. In this study, the researcher used sampling techniques and all respondents/participants were treated in the same way throughout the data collection and beliefs, cultures and attitudes were respected at all times.

3.4.2.9.7 Respect for persons

During research, every researcher should respect the dignity and autonomy of the study respondents/participants (Oates et al 2021; WHO 2019b). Accordingly, the study applied voluntary participation of the study respondents/participants following comprehensive clarification about the objectives of the study.

3.4.2.9.8 Scientific integrity

According to the WHO (2019b:21-25), honesty and adherence to the ethics accepted by the research community are at the heart of scientific integrity. In this study, scientific integrity was assured by following scientific sample size calculation, data were collected by experienced data collectors, the findings were analysed by following appropriate methods and interpreted based on the collected data and acknowledging the consulted references.

3.4.2.9.9 Handling COVID-19

Coronavirus disease (COVID-19) has had a significant negative impact on medical education, travel restrictions and face-to-face interviews for the research activities (Chandratre & Soman 2021). According to the UNISA COVID-19 guidelines (Meyiwa 2020), close physical human participant interactions like face-to-face interviews, focus groups, or human sample collection are permitted by national guidelines. In addition, protection of the participant, the community, and the researcher(s) and research support staff from any risks of harm are crucial while conducting research through the implementation of clear pragmatic risk mitigation measures.

With regard to precautions against COVID-19, the researcher ensured protection of the research respondents/participants and the data collectors with the necessary personal protective equipment like masks and physical distancing procedure during face-to-face interviews. Moreover, data collectors practised proper hand washing and alcohol-based hand rubs. Basic COVID-19 messages were also provided to study respondents/participants as part of the safety precautions. Moreover, the wind direction was considered during the data collection process. In addition to these safety measures, the researcher implemented the necessary measures followed by the country.

3.5 CONCLUSION

This chapter presented the study design and research methodology as well as data collection and analysis techniques. A convergent mixed-method design was used to conduct the study.

The research methods such as setting, population, sampling, sampling techniques, data collection and data analysis for each of the quantitative and qualitative phases were discussed in the chapter. In addition, the validity and reliability, ensuring the trustworthiness of the measurement instrument, ethical considerations and measures taken to prevent the spread of COVID 19 were described.

In the following chapter, Chapter 4, the results of the study are presented.

CHAPTER 4:
ANALYSIS, PRESENTATION AND DISCUSSION OF THE RESEARCH FINDINGS

4.1 INTRODUCTION

4.1.1 Outline of the presentation of the findings

In this chapter, the findings of the study are presented, and discussed. The findings are presented in two main sections. The first section presents sample demographic data, obstetric characteristics, and knowledge of the maternal and neonatal health continuum of care (MNH CoC) demonstrated by study participants. The second section is a presentation and discussion of the research findings from the quantitative and qualitative research methods.

The research findings are presented in such a way that they are linked to the achievement of the study objectives. The chapter begins by reviewing the aim and objectives of the study. The procedures used to analyse the data are presented as an introduction to the chapter.

4.1.2 Aim of the study

The aim of this study was to investigate the determinants of maternal and neonatal service uptake and develop a continuum of care model for reducing maternal and neonatal mortality in North Western Ethiopia.

4.1.3 Research objectives

The present study had five specific objectives. The first three objectives were to be addressed by the quantitative phase, while the fourth objective was addressed in the qualitative phase. The fifth and last objective; that is, to develop a model of a continuum of care for reducing maternal and neonatal mortality in North Western Ethiopia, was addressed in the integrative Phase. To reiterate, these objectives were:

1. To determine and describe the magnitude of the maternal and neonatal continuum of care utilisation in Assosa Zone, North Western Ethiopia.

2. To analyse and describe the current maternal and neonatal continuum of care services in the study area.
3. To identify factors that determine the utilisation of the maternal and neonatal health continuum of care in Assosa Zone.
4. To explore and describe barriers that hinder the utilisation of the maternal and neonatal continuum of care in Assosa Zone, North Western Ethiopia
5. To develop a model of the continuum of care for reducing maternal and neonatal mortality in North Western Ethiopia

4.2 DATA MANAGEMENT AND ANALYSIS

4.2.1 Data management

Data management is the process of collecting, organising, structuring, documenting, analysing, sharing and preserving data for a long period (Sanjeeva 2018). Peersman (2014:9) defines data management as the act of gathering, documenting, cleansing, and presenting data so that it may be verified and used by others. In this study, both quantitative and qualitative data which were collected from all women who had given birth in the last nine months, health providers, health facility heads, district directors, district program officers, HEWs, Kebele leaders, WDA leaders and religious leaders were properly managed. The data collected was checked by the investigator for clarity, accuracy, consistency and completeness. To ensure data confidentiality, the collected data were stored in a password-protected file on the investigator's computer to prevent unauthorised access. The data for the present study will be retained for approximately five years to comply with UNISA's university research data management guidelines. Thereafter, the data will be discarded with the consent of the authorised university official, unless there are concerns about the study that require an extension of the data retention period.

4.2.2 Data analysis

Data analysis is the process of converting the collected data to meaningful outputs using different techniques and approaches (Taherdoost 2022). In this study, depending on the nature and type of data, data were analysed using appropriate analysis methods and techniques as described below.

4.2.2.1 Data analysis: Quantitative phase

The collected data in the quantitative phase were edited, cleaned, entered into a computer and coded and analysed using SPSS 27 software. Descriptive statistics such as frequencies and percentages were analysed, followed by analytical statistics (bivariate and multivariate). In this study, before conducting multivariate binary logistic regression, cross-tabulation, chi-square, and bivariate logistic regressions were conducted. During cross-tabulation, the variables that fulfilled the assumptions of regression were transported to bivariate binary logistic regression. In the bivariate analyses, independent variables whose P-value ≤ 0.2 were exported to multivariate logistic regression and those variables whose P-value was greater than 0.2 were excluded. Multivariate logistic regression was tested using the Hosmer-Lemeshow goodness-of-fit test.

About twenty-nine variables in Model 1, twenty-seven variables in Model 2 and thirty-one variables in Model 3 were P values ≤ 0.2 in the bivariate logistic regression and exported to multivariable logistic regression. Finally, twelve variables in Model 1, twelve variables in Model 2 and eleven variables in Model 3 were identified in backward stepwise method for determining variables for CoC services utilisation. In Model 2, mode of delivery and satisfaction with delivery service variables were introduced in the logistic regression model in addition to variables included in Model 1. In Model 3, place of PNC services and knowledge of modern family planning method variables were introduced in the regression model in addition to variables included in Model 1 and Model 2 (Table 4.11).

Finally, COR and AOR were calculated along with 95% CI to identify the determining variables for the uptake of MNH CoC services.

4.2.2.2 Qualitative data analysis

The qualitative phase of the research focused on answering the research questions aimed at identifying the barriers that hindered the use of MNH CoC services from recognised health facilities. The qualitative data were analysed using Colaizzi's seven steps of data analysis (Praveena & Sasikumar 2021). First, the contents of the transcripts were read and re-read repeatedly in order to make sense of the in-depth interviews. Second, significant statements, phrases and sentences were extracted directly to the investigated objectives. Third, pertinent statements or quotes with similar meanings were categorised into themes.

Fourth, the steps of 1-3 were repeated until all themes were generated, and sub-themes were categorised. Fifth, a full and inclusive description was performed for all the themes identified. Sixth, the fundamental structure was produced by condensing the descriptions. Seventh, the statements of the participants were reviewed to capture their experiences. While creating the themes, sub-themes were created to respond to the qualitative objectives and were described in detail. To strengthen the descriptions and the arguments, direct quotations were used. During quotes, the identity of participants was presented in codes at the end of the quoted words. The participant code “IDI” stands for in-depth interview.

4.3 RESEARCH RESULTS

4.3.1 Quantitative phase

The first section of the research results discusses the sociodemographic, obstetric and knowledge of the MNH CoC situation. The second section of this quantitative phase presents the results of the study based on the objectives of the research.

4.3.1.1 Demographic characteristics of respondents

From the 592 women recruited who had given birth in the previous nine months, only 564 participated in the study, for a response rate of 95.3%. Two hundred and twelve (37.6%) of the respondents lived in the urban area and 62.4% of the respondents lived in the rural area. More than half, 61.2%, of the study respondents were between the ages of 20 and 29 years, with a mean (±SD) age of 27.17 (±5.88) years. The majority, 64.7%, of study respondents were married between the ages of 18 and 24. The study also found that about a third of respondents, 29.1%, were married between the ages of 10 and 17, and only 6.2% were married at the age of 25, with a mean (±SD) age of 18.89 (±3.02) years (Table 4.1).

Table 4.1 shows that two-thirds, that is, 67.2% and 27.3% of study respondents belonged to the Muslim and Orthodox Tewahedo faiths, respectively. The rest of the study respondents were Protestant. The investigation into ethnicity as per Table 4.1 below shows that Amhara constituted 42.0%, Benishangul 40.1% and all others 17.9%.

The education variable reflects that the majority, 78.5%, had formal education from primary to higher level, while 21.5% had no formal education. From a sample of 564, more than

half (52.3%) of the respondents were housewives, 26.4% were farmers, 13.6% were employed and merchants and the rest, 7.6%, had other employment status (Table 4.1).

An analysis of household income revealed that about 65.6% of the respondents had a monthly household income of less than 3,500 Ethiopian Birr (ETB), while 34.4% of the respondents had a monthly income of at least 3,500 ETB with mean (±SD) monthly income of 3,588.41 (±3,923.32) ETB, as shown in Table 4.1 below.

Table 4.1 Respondents' sociodemographic characteristics in Assosa Zone, Northwest Ethiopia (N=564)

Variables	Category	Frequency	Percent	
Age category	15-19 years	35	6.2	
	20-24 years	159	28.2	
	25-29 years	186	33.0	
	30-34 years	96	17.0	Mean age=
	35-39 years	66	11.7	27.17 SD =5.88
Religion	Orthodox Tewahedo	154	27.3	
	Muslim	379	67.2	
	Protestant	31	5.5	
Ethnicity	Benishangul	226	40.1	
	Amhara	237	42.0	
	Others*	101	17.9	
Residence	Urban	212	37.6	
	Rural	352	62.4	
Marital status	Married	542	96.1	
	Others**	22	3.9	
Age of first marriage	10-17 years	164	29.1	
	18-24 years	365	64.7	Mean=18.89
	>=25 years	35	6.2	SD= 3.02
Educational status	No formal education	121	21.5	
	Primary education	243	43.1	
	Secondary	111	19.7	
	College and above	89	15.8	
Occupational status	Farmer	149	26.4	
	Housewife	295	52.3	
	Employee	61	10.8	
	Merchant	16	2.8	
	Others ***	43	7.6	
Household monthly income (ETB)	< 3,500	370	65.6	
	3,500-4,900	60	10.6	Mean=3,588.41
	5,000-9,000	102	18.1	SD=3923.62

Variables	Category	Frequency	Percent
	>= 10,000	32	5.7

* Oromo=95, Tigre=3, Gurage=1 and Shinasha=2, ** (Cohabiting, divorced, widowed and single,*** student, daily labourers

4.3.1.2 The sociocultural, household and family characteristics of respondents

According to Table 4.2 of the study, farming was the occupation of more than half (60%) of the respondents' partners. Only 21.6% were employees, while 8.5% were merchants and 9.0% pursued other occupations. Consistent with the present study, a study conducted in Enemay district in northwest Ethiopia shows that 56.8% of partners were farmers, 34.3% were merchants and 8.9% were employees (Shitie et al 2020). Another study conducted in Legambo district, South Wollo Zone, reveals that 41.1% of partners were farmers, 31.8% were merchants, 22.7% were employed and 3% were students and daily labourers (Cherie, Abdulkerim, Abegaz & Walle Baze 2021).

Regarding decision making, most women (78.2%) used CoC services in decisions made with their partners. The study found that 11.7% of women made reproductive decisions independently and 10.1% sought permission from their partner. In support of the present study, a study conducted in Chelia district of West Shoa Zone indicates that about 85.5% of women made decisions to use MNH CoC services with their partners, 6.5% decisions were made by partners only, 5.4 % decisions were made by women only, and 2.8% decisions were made by families (Buli, Wakgari, Ganfure, Wondimu, Dube, Moti & Doba 2022). The study shows that 92.0% of women who had given birth in the last nine months received support from their partner/family in accessing MNH CoC services at recognised health facilities, but the rest received no support (Table 4.2). In line with this study, 80.7% of women had their partners' support to use MNH CoC services in Debre Berhan Town (Tizazu et al 2021).

This study shows that 83.7% of respondents received information about MNH CoC services from HEWs, health workers, HDA, relatives, community leaders, neighbours and the media. This study also shows that 63.3% of the respondents were exposed to mass media (radio or television), but 36.7% of the respondents were not (Table 4.2). The finding reflects higher reception of information than in Enemay district in Ethiopia where, according

to one study, only 46.1% of study respondents were exposed to media and the provision of information (Shitie et al 2020). Information reception was also much higher than reflected in a study that was conducted in Ethiopia where 25.18% of women had mass media exposure regarding the utilisation of CoC services (Alamneh, Teshale, Yeshaw, Alem, Ayalew et al 2022). The higher information on maternal and neonatal CoC services in the present study could be due to time variation.

At household level, 88.5% of respondents used piped water for drinking and 14.5% of respondents used dug well, spring and river/ stream water as a main source for drinking. In this study, 83.2% of women used pit latrines, 14.0% flush latrines, and the rest open defecation (Table 4.2).

Approximately 62.4% of women who had given birth in the past nine months had travelled up to 30 minutes to receive CoC services from accredited health facilities, and only 37.6% had travelled more than 30 minutes to reach health facilities. The means of transport to reach health facilities were walking, ambulance and public transport. In this study, 53.9% of women walked to reach health facilities (Table 4.2). A similar study conducted in North West Ethiopia indicates that about 76.1% of women travelled up to one hour to receive CoC services and 23.9% of women travelled more than an hour to receive CoC services where the majority, 80%, of women travelled on foot (Atnafu et al 2020). Another study conducted in Chelia district shows that 58.2% of women travelled more than 30 minutes to receive CoC services where about 73.6% of them travelled on foot.

Table 4.2 Socio-cultural, household and family characteristics of women who had given birth in the last nine months in Assosa Zone, Northwest Ethiopia (N=564)

Variables	Category	Frequency	Percent
Partner occupation	Farmer	343	60.8
	Employee	122	21.6
	Merchant	48	8.5
	Others*	51	9.0
Primary decision maker for maternal and neonatal CoC utilisation	Woman herself	66	11.7
	Husband	57	10.1
	Both	436	78.2
Had partner/family support to used CoC services	Yes	522	92.6
	No	42	7.4
Got information related to maternal and neonatal CoC	Yes	472	83.7
	No	92	16.3
Source of information on CoC (N=472)	HEWs	223	39.5
	Health workers	209	37.1
	Others **	40	8.4
Listen to radio or watch television	Every day	273	48.4
	Once a week	68	12.1
	Once a month	16	2.8
	Not at all	207	36.7
Main source of drinking water	Piped water	499	88.5
	Dug well	18	3.2
	Spring	39	6.9
	River/stream	8	1.4
Make water safer to drink by	Nothing	342	60.6
	Boiling	57	10.1
	Bleach/Chlorine	152	27.0
	Filter	13	2.3
Type of toilet facility used	Open field	16	2.8
	Flush toilet	79	14.0
	Pit latrine	469	83.2
Distance of health facility	Up to 30 minutes	352	62.4
	31-60 minutes	151	26.8
	61-120 minutes	45	8.0
	> 120 minutes	16	2.8
Mode of transport to health facilities	On foot	304	53.9
	By ambulance	59	10.5
	By public transport	201	35.6

,* students and daily labourers, **HDA=35, relatives=1, community leaders=2, neighbours =1 and media=5

4.3.1.3 The obstetric characteristics of respondents

In this study, about 70.4% of the respondents had two or more pregnancies and the rest had only one pregnancy. Just over two-thirds (67.7%) of respondents had two or more

surviving children and 32.3% of respondents had only one surviving child. More than half (52.1%) of women who had given birth in the past nine months wanted five or more children, 37.8% of them wanted one to four children, and 10.1% of them did not plan to have more children (Table 4.3).

According to Table 4.3 below, the birth interval between the current child and its older siblings was less than 24 months for 17.6% of respondents, 25–35 months for 16.1% of respondents and more than or equal to 36 months for 36.8% of respondents. This short birth interval is in line with other studies such as the one conducted in Brazil and Ethiopia where the birth interval was similar in 17.1% and 17.3% of the respondents, respectively (Barbosa, Alves, Nathasje, Chagas, Simões & Silva 2020; Shallo & Gobena 2020). Dissimilarities in the rate of reporting a birth interval between the present child and his/her elder sibling that was less than 24 months were observed in studies conducted in Uganda, Eastern Ethiopia, Southwest Ethiopia and Northern Ethiopia, where the rates were 52.4%; 56.0%; 59.9% and 23.3%, respectively (Aleni, Mbalinda & Muhindo 2020; Wakeyo, Kebira, Assefa & Dheresa 2022; Ayane, Desta, Demissie, Assefa & Woldemariam 2019; Gebrehiwot, Abera, Tesfay & Tilahun 2019). These discrepancies could be because of differences in the cut-off of short birth intervals, study settings, sociocultural factors and interventions implemented across countries. In this study, the cut-off points used for short birth interval were less than 24 months and the previous studies used 33 months (Wakeyo et al 2022). The other possible reasons could be poor access to modern contraceptives and religious challenges which contributed to the high prevalence of short birth intervals.

This study found that 92.2% of women had no complications during pregnancy. However, only 7.8% of women had a history of complications during their pregnancy (Table 4.3). The prevalence of complications in this study was lower than in a study conducted in Northwest Ethiopia where 15.9% of women had pregnancy related complications (Kebede, Yigezaw, Yilma & Delele 2021). The rate in the present study was also much lower than in studies conducted in Indonesia and Ethiopia where in both studies the prevalence of pregnancy related complications was 30.0% (Diana, Wahyuni, & Prasetyo 2020; Eshetu, Aderajew, Mekitie, 2017). However, the history of complications was higher than in a study conducted in West Gojam where 10.5% of women had pregnancy related complications (Emiru et al 2020). This difference could be due to difference in the study population and presence of

unequal implementation of intervention services. As shown in Table 4.3, major complications during pregnancy include vaginal bleeding in 22.4%, excessive vaginal fluid or gush in 19.0%, severe headache in 19.0%, blurred vision in 10.3%, pressure in 10.3%, anaemia in 10.3%, severe abdominal pain in 1.7% and convulsions in 1.7% of respondents. Similarly, severe headache and high-grade fever were the most frequently reported complications during pregnancy (Kebede et al 2021). Even though most women (81.4%) did not have a history of adverse outcomes on the health of their neonates and themselves, about 18.6% of respondents had a history of adverse outcomes. Adverse outcomes include preterm birth, history of stillbirth, neonatal death, history of abortion, low neonatal weight, and previous caesarean section (Table 4.3).

In this study, 68.4% of women used family planning to delay their most recent pregnancy, but 31.6% of them did not. The analysis of this study shows that 14.2% of respondents had recent pregnancies that were unintended. This result is relatively higher than that of a study conducted in Ethiopia where 12% of pregnancies among women were unwanted (Alemayehu, Belay & Shetanoa 2021). This study's result is also much higher than that of a study conducted in West Gojjam (Ethiopia), where 3.4% of pregnancies were unwanted. The present study finding was also much smaller than that of a study conducted in Gambia, with prevalence of unplanned pregnancy among women at 25.3% (Barrow, Jobe, Barrow, Touray & Ekholuenetale 2022). The difference in the findings could be due to sociodemographic differences, gaps in awareness of prevention of unwanted pregnancies among women, and the presence of partner influence about the use of family planning services. The main causes of unintended pregnancies in this study were women's lack of awareness, fear of side effects of family planning, partner disapproval, breastfeeding, and failure of family planning, as presented in Table 4.3. In line with the present study, a study conducted by Alemayehu et al (2021) identified that a lack of decision making power and poor knowledge of contraceptives along with the CoC contributed to higher levels of unplanned pregnancy in Ethiopia.

Table 4.3 Obstetric characteristics of women who had given birth in the last nine months in Assosa Zone, North Western Ethiopia (N=564)

Variables	Category	Frequency	Percent
Number of pregnancies	One	167	29.6
	Two	138	24.5
	Three	100	17.7
	Four and more	159	28.2
Number of children	One	182	32.3
	Two	140	24.8
	Three	103	18.3
	Four and more	139	24.6
The interval between the birth of the last child and his/her immediate elder sibling	Not applicable*	167	29.6
	< 24 months	99	17.6
	24-35 months	91	16.1
	36-59 months	152	27.0
	>= 60 months	55	9.8
No of children the woman wants to have	No child	57	10.1
	1-4 children	213	37.8
	>=5 children	294	52.1
Had complications during previous pregnancy (N=397)	Yes	31	7.8
	No	366	92.2
Complications during pregnancy includes (N=31) **	Vaginal bleeding	13	22.4
	Excessive vaginal gush of fluid	11	19.0
	Severe headache	11	19.0
	Blurred vision	6	10.3
	Pressure	6	10.3
	Anaemia	6	10.3
	High fever	3	5.2
	Severe abdominal pain	1	1.7
	Convulsion	1	1.7
History of adverse outcomes before current child (N=397)	Yes	74	18.6
	No	323	81.4
Adverse pregnancy outcomes before current child (N=74) **	Preterm	14	13.9
	History of still birth	18	17.8
	History of neonatal death	22	21.8
	History of abortion	21	20.8
	Neonatal low weight	5	5.0
	Previous C-section	21	20.8
Wanted pregnancy	Yes	484	85.8
	No	80	14.2
Modern family planning used to delay the last pregnancy	Yes	386	68.4
	No	178	31.6
Reasons for unwanted pregnancy (N=80)**	Lack of awareness	26	28.6
	Fear of side effect	19	20.9
	Partner disapproval	19	20.9
	Because of breastfeeding	22	24.2
	Health worker error	5	5.5

Note: *the women have only one child, ** analysis was done using multiple responses

4.3.1.4 Respondents' knowledge of maternal and neonatal health

This study found that 75.7% of women who had given birth in the last nine months had heard about the time between two consecutive births. This finding was comparable with a study conducted in South Ethiopia where 76.4% of women had information about birth spacing (Muluneh et al 2020). However, it was lower than previous Ethiopian and Ugandan findings where 87.4% and 100% of women had heard about the interbirth interval between two consecutive births, respectively (Aklil, Temesgan, Anteneh & Debele 2022); Aleni et al 2020).

Of all respondents, 67.7% of women knew that the optimal years between the two consecutive birth intervals could be 3-5 years. In this study, 87.5% of respondents knew that a short birth interval has negative effects on neonates' health and can lead to low birth weight, preterm birth and neonatal death. However, a small proportion (7.3%) of women did not know the consequences of a short birth interval and 5.2% of women believed that a short birth interval does not have any health disadvantages for newborns. Likewise, 82.9% of respondents said that short birth intervals could lead to anaemia, bleeding and death among mothers. Nevertheless, 6.4% of women did not appreciate the disadvantage of short birth intervals and 10.8% did not know the health disadvantages (Table 4.4). In line with this study, a study conducted in Dembecha District (Ethiopia) indicates that 85.4% of women knew that a short birth interval between the two consecutive births had negative health outcomes for the mothers and the neonates (Aklil et al 2022). In another study, women mentioned that a short birth interval could cause premature birth, low birth weight, poor lactation, death of the baby, death of the mother, and poor health of the child (Aleni et al 2020).

As shown in Table 4.4 below, 65.1% of women knew the right time to start the first ANC follow-up from accredited health facilities. About 81.4% of women also knew the expected number of ANC visits during pregnancy in health facilities. This result was comparable to a study conducted in southern Ethiopia, where 66.0% of women knew that the appropriate time to start ANC service is before the fourth month and 76.9% of women believed that four or more ANC visits were necessary during pregnancy (Tufa, Tsegaye & Seyoum 2020). Knowledge of the expected number of ANC visits in this study was higher than in the study conducted in Nepal, which was 55.7% (Silwal, Shibanuma, Poudyal, Ikeda & Jimba 2021).

The higher knowledge of the expected number of ANC services in this study could be due to the presence of the Health Development Army in Ethiopia, which identified pregnant women and linked them to HEWs. Health extension workers also linked them to health facilities to attend four or more ANC services. This practice may provide knowledge for women to know the expected number of ANC visits during pregnancy.

This study found that 96.3% of the respondents had knowledge of skilled childbirth preparation from a recognised health facility while only 3.7% of them did not have such knowledge (Table 4.4). This study result was much higher than in studies conducted in Addis Ababa, where 15.2% women had birth preparedness domains such as identified place of delivery, identified skilled delivery and saving money for transportation (Mulugeta, Giru, Berhanu & Demelew 2020). The present study results were also higher than in a study conducted in Uganda, where 66.2% of women identified skilled birth attendance (Florence, Atuhaire, Nkfusai, Shirinde & Cumber 2019). The planning for the skilled birth attendance is very important to ensure that women deliver at recognised health facilities. The higher knowledge in the present study could not be included in all components of birth preparedness such as the identified place of delivery, skilled birth attendance, blood donors and saving money for transportation.

Only a few, 16.7%, of the respondents had comprehensive knowledge about maternal complications that may occur during pregnancy, delivery and postpartum, but the majority, 83.3%, of the respondents did not have comprehensive maternal knowledge about complications over the course of the CoC (Table 4.4). This finding is comparable to that of a study conducted in the Ethiopian Somalia Region where 15.5% of women had good knowledge about maternal obstetric complications (Maseresha, Woldemichael & Dube 2016). However, this study result is much lower than those of studies conducted in Shashemene town and Angolela Tera district (Ethiopia), where 40.5% and 37.5% of women, respectively, had good knowledge of obstetric complications (Wassihun et al 2020; Woldeamanuel, Lemma & Zegeye 2019). The possible explanations for the difference in the findings could be sociocultural differences, variations in the implementation of high impact maternal health interventions and the difference in the cut-off points to declare good and poor knowledge of obstetric complications. As shown in Table 4.4, respondents were aware of the following maternal problems that could occur during pregnancy: high blood

pressure, seizures, lack of foetal activity, swelling of the hands, legs and face, bleeding or watery discharge, or vaginal discharge. Respondents reported protracted labour, heavy vaginal bleeding, delayed expulsion of the placenta, severe abdominal pain, foetal malposition, umbilical cord prolapse, and malposition as possible maternal problems during delivery. Respondents reported malodorous changes and high fever as problems that could occur in the postnatal period. In line with the present study, the complications that could occur during pregnancy, labour and delivery and postnatal periods were mentioned by studies conducted in Shashemene town and Angolela district (Wassihun et al 2020; Woldeamanuel et al 2019).

The analysis shows that only 12.6% of the respondents had comprehensive knowledge about danger signs in neonates, but the majority (87.4%) of the respondents did not have comprehensive knowledge about neonatal complications (Table 4.4). The present finding is much lower than in studies conducted in North Central Ethiopia and southern Ethiopia where 61% of women and 48% of women respectively had good knowledge of neonatal danger signs (Bayih, Birhan, Yeshambel, & Asfaw 2020; Mose, Abebe, Shitu & Shimels 2021). The lower levels of knowledge in this finding could be due to the difference in the cut-off points to declare good and poor knowledge of neonatal complications. In this study, good knowledge was declared when the woman correctly listed five and more than five neonatal danger signs but the study in northern central Ethiopia and southern Ethiopia classified good knowledge when women listed three or more neonatal danger signs. Other possible explanations could be due to cultural differences and area circumstances. In the present study, 71.4% of respondents listed that inability to breastfeed, fever, fast breathing and breathing difficulty were the major neonatal danger signs that could occur during and after delivery. Similarly, a study conducted by Mose et al (2021) shows that the most mentioned neonatal danger signs by women were fever and being unable to breastfeed.

Table 4.4 Knowledge of maternal and neonatal health among women who had given birth in the past nine months in Assosa Zone, North Western Ethiopia (N=564)

Variables	Category	Frequency	Percent
Heard about optimal birth interval between two consecutive births	Yes	427	75.7
	No	137	24.3
Knew the optimum number of birth intervals	< 3 Years	100	17.7
	3-5 Years	382	67.7
	>5 Years	82	14.5
Knew disadvantage of short birth interval for neonate (N=564) *	Low birth weight	379	49.3
	Preterm baby	166	21.6
	Death	128	16.6
	No problem	40	5.2
	Don't know	56	7.3
Knew disadvantage of short birth interval for mothers (N=564) *	Anaemia	319	37.1
	Bleeding	248	28.8
	Death	145	16.9
	Don't know	93	10.8
	No problem	55	6.4
Knew modern methods of family planning to delay pregnancy	Yes	471	83.5
	No	93	16.5
Knew appropriate time to begin ANC	Yes	367	65.1
	No	197	34.9
Knew expected number of ANC during pregnancy at health facilities	Yes	459	81.4
	No	105	18.6
Knew need for preparation for delivery	Yes	543	96.3
	No	21	3.7
Overall knowledge of obstetric complication during ANC, delivery and PNC	Yes	94	16.7
	No	470	83.3
Obstetric complication that could occur during pregnancy *	High blood pressure	321	28.7
	Blurred vision or convulsion	217	19.4
	Absence or less movement of foetus	165	14.7
	Swelling of hands, legs and face	198	17.7
	Bleeding or watery gush of fluid discharge through vagina	219	19.6
Obstetric complication that could occur during delivery *	Prolonged labour	205	18.1
	Excessive vaginal bleeding	309	27.3
	Delay in placental expulsion	164	14.5
	Severe abdominal pain	134	11.9
	Rupture of uterus	77	6.8
	Foetus in abnormal position	89	7.9
	Cord prolapsed	81	7.2
	Mal-presentation	71	6.3
Obstetric complication that could occur during PNC *	High fever	250	50.6
	Foul smelling discharge	244	49.4
Overall knowledge on newborn danger signs	Yes	71	12.6
	No	493	87.4
Know newborn danger signs*	Not able to breastfeed	382	27.1

Variables	Category	Frequency	Percent
	Fever	298	21.2
	Fast breathing	184	13.1
	Difficulty of breathing	141	10.0
	Lethargic or unconscious	67	4.8
	Hypothermia	31	2.2
	Convulsion	87	6.2
	Umbilical infection	70	5.0
	Jaundice	37	2.6
	Vomiting	110	7.8

Note: * analysis was done using multiple responses

4.3.1.5 Continuum of care service utilisation

4.3.1.5.1 Antenatal care (ANC) service utilisation

This study found that 95% of women attended their first ANC services in their last pregnancy, which is consistent with a study conducted in Kenya where 95.7% of women attended their first ANC (Alem, Shitu & Alamneh 2022). The first ANC attendance in this study was lower than in a study conducted in Ghana (98%) (Enos et al 2021). It was also lower than in East African countries (Burundi, Malawi, Rwanda, Tanzania, Uganda and Zambia) where the visits ranged from 97.5 to 99.2% (Alem et al 2022). However, this finding was higher than in studies conducted in Malawi and different parts of Ethiopia (Kazanga, Munthali, McVeigh, Mannan & MacLachlan 2019; Dadi, Medhin, Kassaye, Kassie, Jebena et al 2021; Alem et al 2022; Tsegaye, Shudura et al 2021). The probable reasons for lower utilisation of the first ANC in the present study may be lack of awareness, being busy with family care, long distances, and perception of being healthy. These probable reasons were confirmed by the present study where the reasons that hindered the utilisation of the first ANC among 5% of non-users were lack of awareness of where to go, expectation that the service was not necessary, being busy with family care, the facility was too far, perception of poor quality of maternal services, and perception that they were healthy (Table 4.5). In line with the present finding, in south Ethiopia, 39.3% of women had not utilised ANC services as they perceived no need of care in their condition of good health (Tsegaye, Shudura et al 2021).

For completion of maternal and neonatal CoC, the first ANC booking is critical and plays a crucial role in the utilisation of recommended ANC visits. However, in the present study, of

the total number of ANC visitors, only 62.1% of respondents started ANC visits within one to four months, and 37.9% of respondents started ANC visits later than four months of their pregnancy (Table 4.5). This is higher than in a study conducted in the Gamo Zone of southern Ethiopia, where only 22% of women initiated ANC visits within 1–4 months (Haile et al 2020). Another Ethiopian study conducted from evidence of a 2016 demographic and health survey indicates that only 44.6% of women started ANC at 1-3 months of pregnancy (Muluneh et al 2020). The present finding was lower than the finding from a Debre Berhan (Ethiopia) study where 81.8% of women started their ANC services from recognised health facilities within four months of their recent pregnancy (Tizazu et al 2021). The variations for the start of the first ANC visit could be due to study period differences and awareness gaps that could arise from their culture. The probable reason of lower ANC initiation within four months in the present study as compared to Debre Berhan town (Tizazu et al 2021) could be due to educational status difference where in Debre Berhan town about 92.1% of women had primary, secondary and college levels of education. The other probable reason may be the cut-off points. In the present and Debre Berhan studies, the cut-off points included the fourth month of pregnancy but in other studies the early initiation of ANC was in less than four months.

Four or more ANC follow-ups help mothers to decide where to deliver and identify pregnancy complication risks. This study found that 62.6% of the respondents had attended four or more ANC visits from recognised health facilities in the previous nine months of the present study, but 37.4% of them did not receive the expected number of ANC visits during their pregnancy (Table 4.5). The fourth or more ANC services utilisation was lower than in studies conducted in Egypt (90.8%) and Ethiopia (74%) (Hamed et al 2018; Tizazu et al 2021), but the present finding was much higher than in studies conducted in Afghanistan (26.32%), Gamo Zone (25.2%) and West Gojjam (39.9%) (Khan et al 2020; Haile et al 2020; Emiru et al 2020). The higher variations of coverage could be due to study settings and study periods. The previous study was conducted in urban settings (Tizazu et al 2021) where women might easily get to health facilities and may develop higher awareness than in the present study.

In each of the ANC visits, every woman expected to get proper counselling targeted for the woman’s behaviour in health, physical examinations and screenings. During ANC follow-

ups, the majority of study respondents received counselling services. According to this result, 90.5% of women received advice on pregnancy complications, 90.7% received antenatal planning, 90.3% received advice on postpartum family planning (PPFP), 95.9% received advice on the benefits of facility delivery and PNC services and 91.4% were informed about effects of malaria in pregnancy and its prevention. A similar study conducted in Debre Berhan town also indicates that 86.6% of women received counselling services on birth preparedness planning, 94.1% on nutrition and 86.6% on danger signs that could occur during pregnancy, delivery and the PNC periods (Tizazu et al 2021).

Table 4.5 ANC service utilisation of women who had given birth in the last nine months in Assosa Zone, Northwest Ethiopia (N=564)

Variables	Category	Frequency	Percent
Attended ANC for the current child	Yes	536	95.0
	No	28	5.0
Reasons for not attending ANC (N=28)*	Not aware where to go	7	17.1
	It was not necessary	10	24.4
	Busy with family care	5	12.2
	Facility was too far	7	17.1
	Perceived poor quality of maternity services	2	4.9
	Was healthy	10	24.4
Started 1st ANC at (N=536)	1-4 months	336	62.6
	5 months	200	37.4
	6-9 months	82	15.3
Received 4th and more ANC (N=536)	Yes	353	65.9
	No	183	34.1
Places of ANC services	Hospital	86	15.2
	Health Centre	406	72.0
	Health posts	38	6.7
	Private clinic	6	1.1
	Not received at all	28	5.0
Received pregnancy complication counselling (N=536)	Yes	485	90.5
	No	51	9.5
	Yes	486	90.7
Got birth preparedness plan counselling (N=536)	No	50	9.3
Advised about diet and nutrition (N=536)	Yes	508	94.8
	No	28	5.2
Counselled for IPPFP (N=536)	Yes	484	90.3
	No	52	9.7
Counselled about advantages of facility delivery and PNC services (N=536)	Yes	514	95.9
	No	22	4.1
Advised about effect of malaria during pregnancy and its prevention (N=536)	Yes	490	91.4
	No	46	8.6

Women who had given birth in the previous nine months were expected to receive iron folic acid for about three months to prevent pregnancy-related anaemia. They also expected to receive tetanus toxoid (TT) vaccination up to five times to prevent tetanus in newborns. However, only 52.8% of women received iron folic acid for three or more months, 30.5% for one to two months, 13.3% for less than a month, and 3.1% not at all. Regarding TT, only 17.2% of women received it five times and expected to be protected. The majority, 80.1%, received one to four times and the remainder, 2.7%, not at all (Figure 4.1). This finding was comparable with a study conducted in Arba Minch which indicated that about 49.0% of women received iron tablets 90^{+} (three or more months) but the present study was much higher on vaccination of TT than the Arba Minch study (Haile et al 2020). The present finding of TT vaccination is also higher than in a study conducted in Debre Birhan town (71.4%) (Tizazu et al 2021). The higher result in the present study may be due to including all vaccinations that the woman received during the recent or the previous pregnancy. The other probable reasons for higher TT vaccination could be due to study period variations.

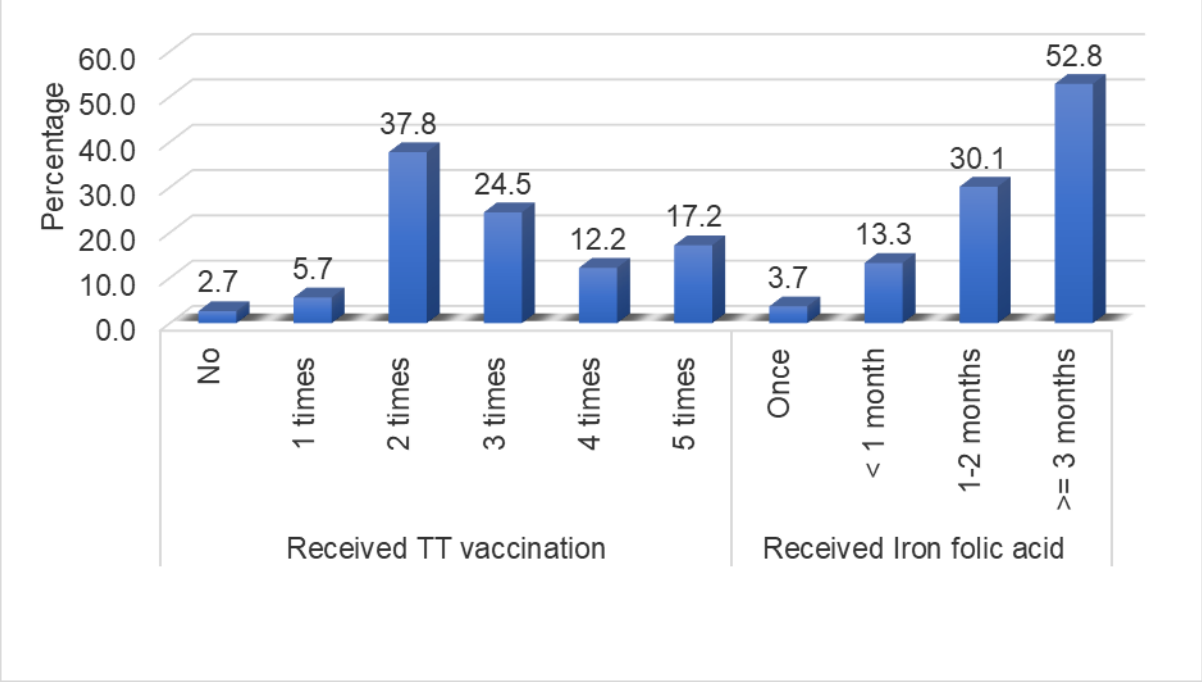

Figure 4.1 TT vaccination and iron folic acid supplementation received during ANC visits among women who had given birth in Assosa Zone, North Western Ethiopia (N=564)

During ANC follow-ups, all women expected to get basic screening and laboratory investigations from recognised facilities for the well-being of maternal and neonatal health. Accordingly, in this study, 94.0% of women had their weight measured, 94.0% of women had their blood pressure checked, and 93.4% of women had their height checked during frequent visits. Likewise, 93.8% of women were screened for syphilis, 98.7% were tested for HIV, 83.8% were tested for hepatitis B surface antigen, and 97.6% of women received urine tests (Figure 4.2). The present essential ANC investigation was comparable with the study conducted in Debre Birhan where 98.1% of women received blood pressure check-up, 96.3% of women gave a urine sample for the investigations and 98.6% of women gave blood for investigations (Tizazu et al 2021). The present study also has similar essential investigations to those of the study conducted in Enemay district where 96.3% women received blood pressure check, 95.5% of women gave blood samples and 91.8% of women gave urine samples for different laboratory investigations (Shitie et al 2020). However, in the present study ANC essential laboratory investigation was much higher than that of the study conducted in Arba Minch, Ethiopia (Haile et al 2020).

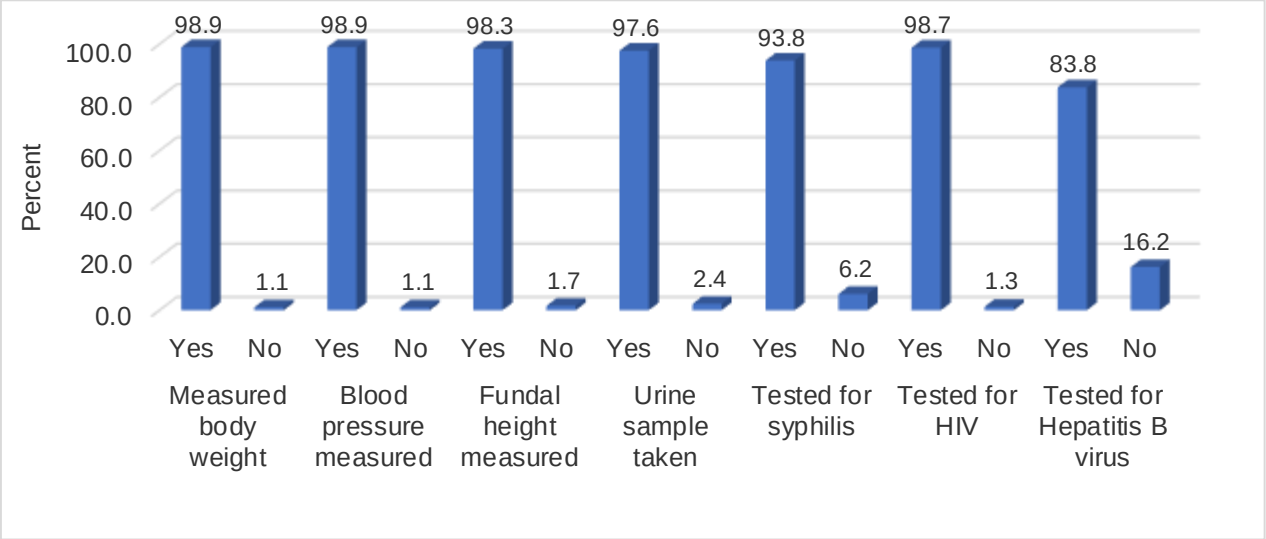

Figure 4.2 Routine ANC interventions received during ANC visits by women who had given birth in Assosa Zone, North Western Ethiopia (N=536)

4.3.1.5.2 Skilled delivery service utilisation

Skilled delivery is the most proven high impact intervention in reducing maternal and neonatal mortality and is one of the targets of SDGs of the UN (WHO 2018). The present study shows that 94.5% of women who gave birth in the nine months prior to the study were supported by skilled birth attendants (SBA) in health centres and hospitals (Table 4.6). This finding was higher than in other studies where SBA was 74.5% in East Akim Municipality, Ghana (Enos et al 2021), 56% in Gambia (Oh et al 2020) and 85% in Egypt (Hamed et al 2018). It was higher than studies conducted in different parts of Ethiopia such as 46.3% in Gamo Zone, 52.1% in Dale-Wonsho district, 65.4% in Mota town and Northwest Ethiopia, and 47.5% in West Gojjam Zone, 50.8% in Kebata Tebaro Zone (Haile et al 2020; Tsegaye, Shudura et al 2021; Asratie et al 2020; Emiru et al 2020). The higher SBA might be due to the active involvement of the Women's HDA leaders who referred women before the expected due date or labour started at home. In addition, HEWs were actively involved in registering all pregnant women to attend ANC follow ups, calculating the expected date of delivery (EDD), and facilitating referral services to health centres and hospitals for skilled delivery services. Jackson and Hailemariam (2016) supported this probable reason in such a way that HDA leaders facilitated referral of women before the expected due date or if labour started at home. Health extension workers improved skilled birth attendance by connecting the community and health facilities. However, the finding of the present study was lower than that of a study conducted in Debre Birhan Town, Ethiopia, where 99.1% of women received SBA during their last delivery (Tizazu et al 2021). The difference could be explained by the fact that in the Debre Birhan study women had better educational status and the study setting was in an urban town only, which brought the woman to get SBA from health centres and hospitals.

Approximately 86.3% of study participants delivered by spontaneous delivery, 8.0% by assisted vaginal delivery and 5.7% by caesarean section. Most (73.2%) of respondents delivered their baby in health centres, 21.5% in hospital, 2.0% in health posts and 3.5% at home (Table 4.6). Similarly, in Dale-Wonsho district of South Ethiopia, more than half, 58%, of women attended health centres (Tsegaye, Shudura et al 2021)

This study shows that 3.5% of women did not participate in SBA due to sudden onset of labour, comfort of giving birth in front of relatives, distance of health facilities, and lack of

convenient transportation at the onset of labour (Table 4.6). These reasons were supported by Tsegaye, Shudura et al (2021), where lacks of road access and ambulance delays were the major hindering barriers. Another study conducted in West Gojjam Zone (Emiru et al 2020) also indicates that sudden onset of labour and lack of transportation for getting to health facilities were the major barriers that hindered women from seeking skilled delivery. This is further confirmed by the fact that 53.4% who delivered in the health facilities did not get ambulance services when their labour started. Even from those who got ambulance services, only 7.6% of women received ambulance services both from home to health facility and from health facility to home (Table 4.6).

In the Ethiopian context, cost of pregnancy and delivery related services are waived and every woman can receive services without any payment at governmental health facilities (MoH 2016). According to the respondents' answers, 14.9% of women paid service-related payments during childbirth, but the rest (85.1%) received the services free of charge. During obstetric care, approximately 80.0% of women received a respectful greeting from providers, 93.2% received adequate privacy during delivery, 88.8% were allowed to be cared for by a companion during labour and delivery, 89.9 % were encouraged to consume food or fluids during labour, 76.5% of women were allowed to sleep in their preferred position during labour, and 95.4% of women received compassionate birth care from providers in the study area. According to the responses, about 91.4% of them wanted to deliver again at the same facility for their future delivery, but only a few, 8.6%, did not want to deliver again at the same facility (Table 4.6).

Table 4.6 Skilled delivery service utilisation of women who had given birth in the last nine months in Assosa Zone, North Western Ethiopia (N=564)

Variables	Category	Frequency	Percent
Skilled birth attendant	Yes	533	94.5
	No	31	5.5
Places of delivery	Hospital	120	21.3
	HC	413	73.2
	HP	11	2.0
	Home	20	3.5
Got ambulance service in the recent delivery	Yes	263	46.6
	No	301	53.4
Got ambulance service during recent delivery (N=263)	Before birth	207	78.7
	After birth	36	13.7

Variables	Category	Frequency	Percent
	Both	20	7.6
Reasons for not delivering at health facilities (N=20) *	Sudden onset of labour	9	36.4
	Comfortable to give birth in front of TBAs and relatives	1	4.5
	Far to health facility	3	13.6
	Inconvenient transport	10	45.5
Mode of delivery for your recent baby	Assisted vaginal	45	8.0
	Spontaneous vaginal	487	86.3
	Caesarean section	32	5.7
Service-related payment during delivery (N=544)	Yes	81	14.9
	No	463	85.1
Providers greeted you respectfully (N=544)	Yes	435	80.0
	No	109	20.0
Adequate privacy given to you during the examination by the health worker (N=544)	Yes	507	93.2
	No	37	6.8
Providers allowed you to have a companion with you during your labour and delivery (N=544)	Yes	483	88.8
	No	61	11.2
Providers encouraged taking food or fluid in the process of labour (N=544)	Yes	489	89.9
	No	55	10.1
Providers allowed you to sleep in your preferred position during labour (N=544)	Yes	416	76.5
	No	128	23.5
Providers offered compassionate delivery care (N=544)	Yes	519	95.4
	No	25	4.6
Want to deliver again in this same facility (N=544)	Yes	497	91.4
	No	47	8.6

4.3.1.5.3 Satisfaction with skilled birth attendance

As indicated in Table 4.7, in this study, the satisfaction of women who had given birth in the past nine months was seen in the staff's approach, waiting time, privacy issues, charges for services, quality of services, and skill of health workers. Accordingly, 75.6% of women were satisfied with their recent labour and delivery care given in the health facilities but 24.4% of women were not satisfied. This finding is comparable with the study conducted in Adama (Ethiopia) which shows that 74.8% of women were satisfied with the care they received (Tadele, Bikila, Fite & Obsa, 2020). It was higher than the pooled prevalence of a study conducted in Ethiopia where 67.3% of women were satisfied with labour and delivery by skilled delivery services (Bishaw, Temesgen, Amha, Desta, Bazezew et al 2022). On the other hand, it was lower than the results of studies conducted in Mozambique and Italy

where 92.5% and 84.2% of women were satisfied during labour and delivery services, respectively (Mocumbi, Högberg, Lampa, Sacoor, Vala et al 2019; Lazzerini, Mariani, Semenzato, & Valente 2020). The difference in service satisfaction might be due to variations in the quality of services provided by health facilities, labouring mothers' previous experiences and expectations, and differences in sociodemographic characteristics of respondents. The difference in the quality of services may arise due to the type of facility (hospital or health centre). Another probable reason may be women's preference of the sex of health workers. Yet another possible reason could be variations in measuring the satisfaction using different aspects and cut-off points.

Table 4.7 Satisfaction with facility delivery service of women who had given birth in the last nine months in Assosa Zone, Northwest Ethiopia (N=544)

Variables	Category	Frequency	Percent
Staff approach during delivery	Satisfied	503	92.5
	Undecided	23	4.2
	Dissatisfied	18	3.3
Waiting time	Satisfied	490	90.1
	Undecided	37	6.8
	Dissatisfied	17	3.1
Privacy issue	Satisfied	498	91.5
	Undecided	30	5.5
	Dissatisfied	16	2.9
Charge of services	Satisfied	496	91.2
	Undecided	26	4.8
	Dissatisfied	22	4.0
Quality services	Satisfied	475	87.3
	Undecided	51	9.4
	Dissatisfied	18	3.3
Skill of health workers	Satisfied	494	90.8
	Undecided	37	6.8
	Dissatisfied	13	2.4
Overall satisfaction	**Satisfied**	**411**	**75.6**
	Dissatisfied	**133**	**24.4**

4.3.1.5.4 Postnatal care service utilisation

Most of the maternal and neonatal complications and deaths occurred in the first week of the postnatal period. After delivery, PNC check-up is critical to the health of women and their neonates. This study found that about 87.9% of women who had delivered in the last nine months had attended PNC services (Table 4.8). This result is comparable to that of a

study conducted in Ghana in which 86.1% of women had postnatal visits (Enos et al 2021). It is higher than in studies conducted in Egypt, Motta Town and Hulet Eju Enese district (Northwest Ethiopia) and in rural areas of west Ethiopia (Hamed et al 2018; Asratie et al 2020; Beyene, Melka, & Yadecha 2022). The higher PNC in the present study could be because mothers were counselled to stay 24 hours after childbirth in the context of the region and after that home-to-home visits for postnatal checks for all women were performed by HEWs. This study confirmed that 93.2% of respondents waited at health facilities after delivery and received the first PNC services and about 6.8% of respondents waited more than 24 hours at health facilities. During their stay, 93.4% of women's and neonates' health status was checked by the health workers, 5.1% was not checked and the rest, 1.5%, did not know whether their health status was checked or not (Table 4.8).

Of the 496 women who used PNC, more than half, 54.0%, were attended within 24 hours, 13.1% within 25-48 hours, 9.0% within 49-72 hours, 16.0% followed from 73 hours to six days and 9.8% followed after more than six weeks. About 52.1% of the respondents received PNC services from the health centres and the rest, 47.9%, received services in hospitals, health posts and homes. The present study also shows that 22.2%, 28.6%, 17%, 12% and 12.3% of the respondents were counselled on the type of vaginal discharge, breastfeeding, danger signs in neonates and mothers, nutrition and family planning services. The main reasons for using PNC services were illness of women and neonates, checking one's own and the neonates' health status, vaccinating neonates, family planning, counselling on breastfeeding, testing for anaemia, and obtaining information about danger signs (Table 4.8). These reasons were similar to those in other studies where the major reasons for using PNC among women were wanting to start family planning, attending child immunisation, checking their health status, seeking treatment for illness and attending their appointment provided by midwives (Beyene et al 2022). Demographic and health survey in a study conducted in New Guinea indicates that women utilised PNC services mostly for the health of their babies (Appiah, Fenteng, Dare, Salihu, Darteh et al 2021). Another Ethiopian study further indicates that women utilised PNC services for family planning services (Mekonnen, Dune, Perz & Ogbo 2021).

Nearly half of the health status of mothers and their neonates was assessed by HEWs, 21.8% by midwives, 1.8% by doctors, 2.3% by the HDA, and the rest was not assessed

after they left the health facility for those who gave birth in health facilities and those who gave birth at home (Table 4.8).

As shown in Table 4.8 below, 12.1% of the respondents had not used the PNC services because they found the services unnecessary, believed in the forty-day rule, i.e., confinement at home, lack of transport access, perceived poor quality of services, lack of previous complications, previous negative experiences in facilities, influence of friends and lack of trust in the facility. An Ethiopian 20-year demographic and health survey study indicates that women who perceived the distance from health facilities as their big problem were less likely to utilise PNC services after delivery (Mekonnen et al 2021). Other evidence in Ethiopia and Nigeria indicates that perceived unimportance of maternal health care, lack of trust in services or perceived poor services provision, and lack of accessibility and affordability of services hinder utilisation of maternal health care services (Kea et al 2018; Edu, Agan, Monjok & Makowiecka 2017).

Table 4.8 PNC service utilisation of women who had given birth in the last nine months in Assosa Zone, Northwest Ethiopia (N=564)

Variables	Category	Frequency	Percent
Received PNC check-up for last delivery	Yes	496	87.9
	No	68	12.1
PNC checks time (N=496) *	<= 24 hours	341	54.0
	Within 25-48 hours	83	13.1
	49-72 hours	57	9.0
	73 hours-6 weeks	101	16.0
	> 6 weeks	50	7.9
Place of PNC (496)	Home	55	9.8
	Health posts	90	16.0
	Health centres	294	52.1
	Hospital	57	10.1
Types of services women received during PNC (N=496) *	Advised about nature of vaginal discharge	286	22.2
	Advised about breastfeeding	368	28.6
	Danger sign counselling	218	17.0
	Advised on diet and nutrition	154	12.0
	Advised on family planning	158	12.3
	Informed about date of re-check-up	102	7.9
Reason for attending postnatal care at health facilities (N=496) *	The mothers were sick	44	4.8
	Their babies were sick	56	6.0
	To check her and the	358	38.7

Variables	Category	Frequency	Percent
	baby's health		
	For child immunisation	184	19.9
	To get family planning service	109	11.8
	To receive counselling for breastfeeding	91	9.8
	To get blood test for anaemia	22	2.4
	To obtain information on warning signs of problems	62	6.7
Reasons not attended PNC at health facilities (N=68) *	Think that PNC service is not necessary	33	30.6
	The forty days' rule, i.e., confinement at home	5	4.6
	Lack of support	5	4.6
	Facility was too far	18	16.7
	No transport access	15	13.9
	Perceived poor quality	5	4.6
	No complications experienced	19	17.6
	Previous bad experience at facility	1	0.9
	Friend's influence	1	0.9
	Did not trust facility	6	5.6
Waiting time after delivery in the health facility (N=544)	Up to 24 hrs	507	93.2
	More than 24 hrs	37	6.8
Anyone checked the health status of women and neonate after birth in the health facility (N=544)	Yes	508	93.4
	No	28	5.1
	Don't know	8	1.5
Assessed the health status of mother and her neonate after leaving the health facility by	HEWs	264	46.8
	Midwives	123	21.8
	Doctors	10	1.8
	HDA	13	2.3
	No one	154	27.3
Future plan to utilise complete CoC services	Yes	546	96.8
	No	18	3.2
Place of CoC services preferred	Home	82	14.6
	Hospital	85	15.1
	Health centre	45	8.0
	Health post	352	62.4
Reason to utilise the CoC services in future*	To keep the health of mother and neonate	480	40.4
	For early prevention	308	25.9
	To prevent danger signs that could occur earlier	77	6.5
	To follow neonatal development	152	12.8
	To get necessary investigations	125	10.5
	To prevent haemorrhage	46	3.9

4.3.1.5.5 Neonatal health service utilisation

In this study, according to women's reports, 22.5% of neonates had low birth weight even if it was expected to be higher because 8.7% of women did not report their neonate status (Table 4.9). This low birth weight is higher than in studies conducted in Eastern Ethiopia and Northwest Ethiopia (Adugna & Worku 2022; Tadesse, Abebe, Molla, Ahmed & Mebratu 2023). The higher rate of low birth weight in the present study might be due to reporting bias since it was recalled after about nine months while in the previous studies birth weight was tested immediately after birth.

During birth, most, 97.2%, of neonates were apparently normal and 2.8% had complicated health problems. This study indicates that 89.9% of neonates were normal and 10.1% had illness immediately or within 28 days after birth such as difficulties in breathing, jaundice, inability to breastfeed, high-grade fever and unknown causes (Table 4.9). Unlike the present findings, the previous study conducted in North Gondar Zone indicates that the prevalence of neonatal illness symptoms reported by women was 27.8% (Delele, Biks, Abebe & Kebede 2021). The higher neonatal illness in the previous study could be due to the difference in the methodology, where the previous study was a prospective follow-up and neonatal illness symptoms were assessed at birth, after 24 hrs, or the 7th, 14th, and 28th day from birth to record any neonatal illnesses after health facility delivery, but in the present study data were collected once, nine months after birth (Delele et al 2021). However, the result of the present study was higher than that of a study conducted in Northwest Ethiopia where the prevalence of adverse birth outcomes was 12%, of which 2.9% were deaths (Zelka, Yalew & Debelew 2022). The higher rate in the present study could be due to the methodology difference: in the previous study the data included both alive and dead neonates while in the present study only women who had live children were interviewed.

A significant number, 92.2%, of neonates were initiated for breastfeeding within one hour after birth and a very small percentage, 7.8%, were initiated on breastfeeding after one hour. In this study, about 88.5% of neonates had exclusive breastfeeding, but 11.5% were given fluids other than breast milk. From the total of 65 neonates, 56.9% were given water, 38.5% were given cow's milk and 4.6% were given other fluids. The majority, 87.1%, of women breastfed for more than eight times per day and the rest, 12.9%, of women

breastfed fewer than eight times (Table 4.9). The present study result was higher than that of a study in Sidama (Ethiopia), where about 78.0% of neonates were initiated for breastfeeding within one hour (Haji, Teshaome, Alemayehu, Mekonen W/Gebriel & G/Tsadik 2018). The present study result is also higher than that of a study conducted in Damot Pulasa District, Southern Ethiopia, where early initiation of breastfeeding within one hour was 45.8% (Chichiabeluu, Mekonnen, Astawesegn, Demissie & Anjulo 2018). It was also much higher than in a study conducted in Chencha District, Southern Ethiopia, where 59.8% of neonates were initiated on breastfeeding within one hour (Mersha, Assefa, Teji, Shibiru, Daghawth & Bante 2018). The higher result in the present study could be due to higher-skilled birth attendants while in the previous studies there was a lower proportion of skilled birth attendance. Skilled delivery may create the opportunity to initiate breastfeeding with the support of the health workers. The other probable reason could be time and cultural differences.

Neonatal essential care services are necessary to prevent neonatal deaths. However, only 57.6% of neonates received TTC for eye care. The result in the present study was lower than that of a previous study where about 72.4% of neonates got eye care (Mersha et al 2018). The present study percentage was much lower than that of the study conducted in Tigray where 90.8% of neonates received eye ointment from health providers (Woldearegawi, Negash, Kahsay, Gebremariam & Tekola 2020). The lower number in the present study could be due to the lack of medication. This was confirmed by many participants in the qualitative part where the health facilities lacked essential drugs.

In this study, 28.2% of neonates were initiated for bathing within 24 hrs and the rest, 71.9%, of neonates, were initiated for bathing after 24 hrs of delivery. The present study finding was similar to that of a study conducted in Sidama (Ethiopia), where bathing of neonates was delayed for more than 24 hrs in 74.0% of the cases (Haji et al 2018). The present study percentage was higher than in another study where delayed bathing for more than 24 hrs was 65.3% (Chichiabeluu et al 2018). The higher delay of bathing in the present study could be due to the presence of highly skilled ANC, birth and PNC attendance, and because women received advice from health professionals. In the previous studies the skilled ANC, delivery and PNC attendances were lower than in the

present study and women may not have received the essential newborn care advice. The other probable reason may be difference in the study time and cultural differences.

This study shows that 85.6% of neonates were vaccinated against polio and BCG but the rest were not vaccinated at birth due to lack of antigens at the time of birth, time was not suitable, mothers did not volunteer, a shortage of health workers, or the long distance from health facilities (Table 4.9). The result in the present study was higher than in a study conducted in Tigray where only 62.9% of neonates were vaccinated with BCG immediately after birth (Woldearegawi et al 2020). The possible difference could be due to time difference and in the recent period, the essential newborn care received attention by the health system. Another probable reason in this study could be the higher proportion of women who received skilled delivery and that the facilities provided child vaccination immediately after birth.

Table 4.9 PNC service utilisation for neonatal health among women who had given birth in the last nine months in Assosa Zone, Northwest Ethiopia (N=564)

Variables	Category	Frequency	Percent
Birth weight of neonate	<=2.0 Kg	76	13.5
	2.1-2.5 Kg	51	9.0
	>2.5 Kg	388	68.8
	Not known by mothers	49	8.7
The condition of the neonate at birth	Apparently normal	548	97.2
	Complicated health problem	16	2.8
Initiated breastfeeding	Within one hour of birth	520	92.2
	One hour after birth	44	7.8
Provided any fluid since birth	Yes	65	11.5
	No	499	88.5
Type of fluid given (N=65)	Cow milk	25	38.5
	Water	37	56.9
	Other	3	4.6
Breast feeding per day	< 8 times	73	12.9
	>= 8 times	491	87.1
Initiated bathing after birth	Within 24 hours	159	28.2
	After 24 hours	405	71.8
Neonate received TTC after birth for eye care	Yes	325	57.6
	No	239	42.4
Neonate received chlorohexidine for cord care	Yes	261	46.3
	No	303	53.7
Received vaccination at birth	Yes	483	85.6
	No	81	14.4
Neonate received the vaccine type (N= 483) *	Polio	431	84.8

Variables	Category	Frequency	Percent
Reasons for not vaccinated at birth (N= 81) *	BCG	77	15.2
	No antigen for vaccination at the time of birth	25	4.4
	Time not suitable	38	6.7
	It was not volunteered	6	1.1
	Shortage of HWs	5	.9
	I don't know	2	.4
	Long distance from the health centre	7	1.2
Illness immediately or within 28 days after birth	Yes	57	10.1
	No	507	89.9
Causes of illness (N=57) *	Difficulty in breathing	25	43.9
	Jaundice	1	1.7
	Unable to breastfeed	10	17.5
	Fever	18	31.6
	Unknown	3	5.3

NB: *Multiple analysis used

4.3.1.5.6 Postpartum family planning (PPFP) service utilisation

Postpartum family planning (PPFP) is one of the important components of PNC services along the CoC to prevent unwanted pregnancy immediately after birth and prevent a short interbirth interval. After delivery, about 83.5% women were counselled for PPFP as a standard care and 25.2% utilised female sterilisation, an intrauterine contraceptive device (IUCD), injectables (Dipo), implants, and pills. The utilisation of PPFP in this study was higher than in other studies conducted in Ethiopia (21.3%) and Liberia (11.9%) (Silesh, Lemma, Abdu, Fanta, Tadese & Taye 2022); Kaydor, Adeoye, Olowolafe & Adekunle 2018). On the other hand, the PPFP use in this study was lower than in studies conducted in Rwanda (72.0%), Addis Ababa (45.5%) and Jimma (53.3%) (Williams, Santos, Azman-Firdaus, Musange, Walker, Sayinzoga, & Chen 2021; Belay & Birara, 2018; Arero, Teka & Jarso 2018). The differences might be due to demographic and sociocultural characteristics. The present study also confirmed that lack of awareness, desire to have more children, partner opposition, breastfeeding, far distances of health facilities from their home, misperceptions (that PPFP causes breast milk to dry up, menstruation not resumed, had obstetric surgery for the recent delivery, and perceived low risk of pregnancy after delivery) were the impeding reasons against using PPFP (Table 4.10). In line with these reasons, the findings from the studies conducted in Liberia and Ethiopia identified fear of side effects, partner opposition, presence of religious restrictions, lack of knowledge about

PPFP, and postpartum abstinence as major barriers that hinder women from utilising PPFP services (Kaydor et al 2018; Silesh et al 2022).

This study shows that 79.8% of women had partner support in using PPFP services and the rest had no partner support. Partners supported women by taking FP themselves (use condom), supported them by providing transportation, and reminded them of appointments (Table 4.10). A study conducted by Silesh et al (2022) in North Shoa Zone (Ethiopia) indicates that 59.3% of women supported by their partners had a higher tendency to utilise PPFP compared to women who did not have husband support.

Table 4.10 PPFP service utilisation among women who had given birth in the last nine months in Assosa Zone, Northwest Ethiopia (N=564)

Variables	Category	Frequency	Percent
Counselled to take PPFP	Yes	471	83.5
	No	93	16.5
Received modern PPFP	Yes	142	25.2
	No	422	74.8
Type of PPFP methods used (N=142)	Female sterilisation	1	0.7
	IUCD	3	2.1
	Dipo	38	26.8
	Implants	93	65.5
	Pills	7	4.9
The reasons for not using PPFP (422)	Desire to have more children	34	8.1
	Not started sexual intercourse	3	0.7
	Lack of awareness	3	0.7
	Due to breastfeeding	3	0.7
	Think low risk of pregnancy	143	33.9
	Menstruation not resumed	152	36.0
	Husband is not around	49	11.6
	Opposition from partner	25	5.9
	Due to obstetric surgery	4	0.9
	Think will dry up breast milk	4	0.9
	Not comfortable	1	0.2
	Due to far distance	1	0.2
Husband supported or assisted to take PPFP	Yes	450	79.8
	No	114	20.2
Got assistance to take PPFP (N=450) *	Taking FP himself	31	5.6
	Supporting by provision of transport	182	32.7
	Reminding dates of appointment	332	59.7
	Use of condoms	11	2.0
Current pregnancy status	Not pregnant	535	94.9
	Pregnant	12	2.1

Variables	Category	Frequency	Percent
	Not known	17	3.0

*Multiple analysis done

4.3.1.5.7 Completion of maternal and neonatal health continuum of care services

The flow of services within the CoC indicates the proportion of women moving from one maternity care service to the next and the points at which women leave the path of the continuum of care. As shown in Figure 4.3, coverage of first ANC, fourth ANC, SBA and PNC services was high, ranging from 62.6 to 95.0% among women who had delivered in the previous nine months in the study area. However, use of CoC services among women decreased from the first ANC to the PNC. This indicates that a significant proportion of women dropped out of the CoC course at each step. Of all respondents, a significant proportion (32.4%) did not continue to attend four or more ANC visits, so that only 62.6% of women received four or more ANC visits. Across the continuum, the lowest dropout of 2.8% was observed between the fourth or more ANC visits and SBA.

In the present study, a total of 53.7% of women had access to the full range of services within the MNH continuum. This result is almost consistent with studies conducted in India and Egypt, where 55.5% and 50.4% of women, respectively, received the full range of MNH CoC services (James, Mishra, Rinju & Pallikadavath 2022; Hamed et al. 2018). This finding was higher than studies conducted in nine regions of Ethiopia (13.9%), Northwest Ethiopia (21.6%), Central Ethiopia (16.1%), Arba Minch Zuria District (9.7%), Debre Birhan City (37.2%) and Gojjam Zone (12.1%), Ethiopian DHS 2016 analysis (9.1%), Uganda (10.7%), Zambia (38.0%), Ghana (47.1%), India (39%) and Bangladesh (30.5%) (Dadi et al 2021; Atnafu et al 2020; Sertsewold, Debie & Geberu 2021; Kothavale & Meher 2021; Sserwanja et al 2021; Sserwanja et al 2022; Shibanuma, Ansah, Kikuchi, Yeji, Okawa et al 2021; Rahman et al 2021; Haile et al 2020; Tizazu et al 2021; Emiru et al 2020; Chaka, Parsaeian & Majdzadeh 2019). The possible reasons for the higher coverage in the present study could be the implementation of transformation programs in the districts and that the districts tracked the performance indicators of maternal and neonatal CoC services to create model households, model kebeles, high-performing primary health care units and transformed woredas. To create these, the maternal and neonatal CoC services (fourth ANC, SBA and PNC) were the main indicators vigorously implemented by HEWs and

women development leaders for referral of women to health facilities, implemented catchment area based clinical mentoring from hospitals to health centres, and quality improvement projects for maternal and neonatal services by some health facilities. These initiatives could increase the completion of CoC services. The other possible reasons could be the difference in accessibility of healthcare facilities, time differences between studies, different method designs and sociodemographic differences between study respondents.

The current study's findings were lower than those of previous research in Debremarkos, Ethiopia (67.8%), Ghana (66.0%), and Nepal (75%) (Amare, Araya, and Asaye 2019; Enos et al 2021; Koirala et al 2020). This disparity might be explained by differences in sample size and sociocultural differences. Another factor might be a low level of timely ANC commencement and completion of four or more ANC services, as well as limited uptake of PNC services.

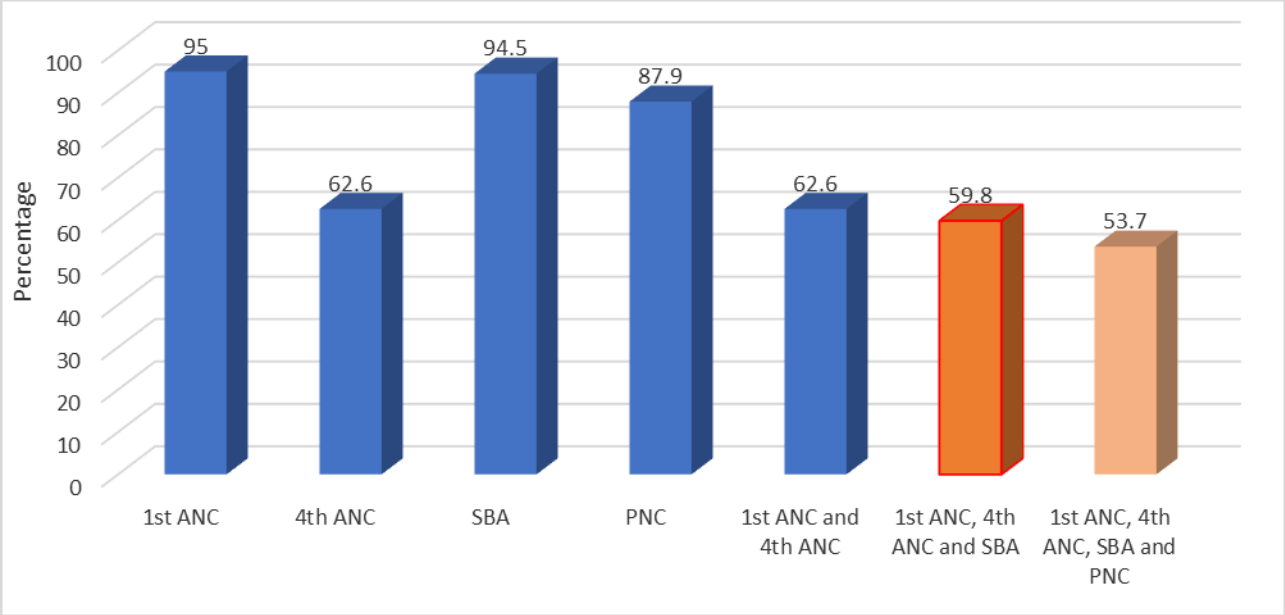

Figure 4.3 Complete CoC service utilisation among women who had given birth in the last nine months in Assosa Zone, Northwest Ethiopia (N=564)

4.3.1.6 Factors affecting completion of maternal and neonatal health continuum of care services

Three models were used during this analysis. In the first model, the predictors of first to fourth ANC utilisation among respondents were analysed. In the second model, the

predictors of first ANC to SBA utilisation among women were analysed. In the third model, the predictors of first ANC to PNC (full CoC) utilisation among respondents were analysed in the study area. After controlling for other variables, the results show that religion, occupation, partner support, number of children, knowledge of expected number of ANC, knowledge of maternal and neonatal danger signs, iron folic acid use, initiation of first ANC period, place of ANC and PNC, comprehensive counselling and physical examination during ANC, and mode of delivery are significantly associated with completion of CoC use among women (Table 4.11).

Compared to Protestant followers, Orthodox Tewahedo religious followers were around four times (AOR=3.60, 95%CI=1.12-12.60) more likely to utilise first ANC to fourth ANC services. However, there were no differences of first and fourth ANC services use between Muslim and Protestant religious followers. A similar study conducted by Emiru et al (2020) indicates that religion is significantly associated with the utilisation of the fourth ANC services and Orthodox Tewahedo followers are more likely to attend the fourth ANC services compared to followers of other religions. The difference could be due to the variance in religious thought and its influence on the uptake of ANC services among women.

In Models 2 and 3, education impacted the completion of CoC services among women who had given birth during the previous nine months. In Model 2 and Model 3, women who had received primary education were approximately twice (AOR=2.26, 95%CI=1.17-4.35) and 2.5 times (AOR=2.53, 95%CI=1.23-5.20) more likely to complete CoC services from recognised health facilities (Table 4.11). This study's findings are comparable to those of other research in India (James et al 2022), Egypt (Hamed et al 2018), and Ethiopia (Tizazu et al 2021; Haile et al 2020; Dadi et al 2021), in which education status positively affected the completion of maternal and neonatal CoC services. Education alters individual women's conduct within the family, influences women's views about disease preventive practices, and increases MNH CoC service use (Chaka et al 2019). According to Weitzman (2017), increasing women's education leads to an increase in health seeking behaviour due to changes in cognitive skills, economic resources, and autonomy. The fact that educated women have access to written materials that assist them to comprehend the value of maternity and neonatal health care may be the most important link.

Women's occupation status impacts their ability to complete MNH CoC services from recognised health institutions. In the current investigation, employment was a robust predictor of completion of CoC services across all three models (Table 4.11). In Models 1, 2, and 3, employed women were 12 times (AOR= 11.68, 95%CI= 2.46-55.37), 12 times (AOR= 12.26, 95%CI= 1.87-80.28), and 20 times (AOR= 20.19, 95%CI= 3.50-116.53) more likely to complete CoC services than housewives, but there was no significant difference between other occupation categories. This outcome is consistent with previous research in Ethiopia and Egypt (Haile et al 2020; Chaka et al 2019, Hamed et al 2018). The greater relationship between employment and CoC service usage may imply that working women have their own income and are more likely than housewives to use MNH CoC services. Research conducted in Indonesia found that employment had a considerable favourable influence on CoC consumption (Andriani, Rachmadani, Natasha, & Saptary 2021). However, research from Ethiopia and Pakistan found that working women had a decreased likelihood of completing CoC services (Emiru et al 2020; Iqbal et al 2017). The prior research may have differed since working women may have less time owing to workload than housewives. However, data showed that work empowers women, and empowered women choose to use MNH CoC services on their own (Sharma, Shekhar, Ranjan, & Chaurasia 2018; Riaz & Pervaiz 2018).

Across all three models, partner support is a robust predictor and positively improves the completion of maternal and neonatal CoC services. In this study, women who were supported by their partners were four times (AOR= 3.52, 95%CI= 1.12-11.12), three times (AOR=3.11, 95%CI= 1.05-9.23), and five times (AOR= 4.94, 95%CI= 1.43-17.14) more likely to complete CoC services than those who were not (Table 4.11). According to Daniele (2021), male partners' engagement is a crucial social support for pregnant women. Their engagement in pregnancy, birth, and the postpartum period might influence the use of MNH CoC services, which improves the health of mothers and their infants. Because of its significance, partner support is a critical component in the causative MNH CoC pathways, increasing the use of CoC services. A study done in Ethiopia found that the engagement of the male spouse was strongly connected with the utilisation of maternal health care among women (Mohammed, Johnston, Vackova, Hassen, & Yi 2019). This could be because they have given permission to use MNH CoC services from recognised

health facilities and to provide necessary support, such as financial support for their partners' maternal health services. However, this finding was contradicted in a study conducted in Ethiopia, where partner support was not statistically significantly associated with completion of MNH-CoC service use (Tizazu et al. 2021). The contradiction may be due to sociocultural differences and study environments.

Number of children is significantly associated with the use of first and fourth ANC services along the CoC. In this study, compared to women who had one child, those women who had two and more children were less likely to complete the fourth ANC follow ups. The present study finding is supported by different studies where parity had negatively influenced the continuity of care. Studies indicate that women with a greater number of children were less likely to continue the use of MNH CoC services from pregnancy to postpartum periods (Iqbal et al 2017; Chalise et al 2019). According to the present study, women who had only one child had higher odds of receiving first ANC and fourth ANC services than women who had more than one child. This could be due to the fact that those women who had healthy babies in their previous experiences may have to develop the confidence about pregnancy outcomes and may not be encouraged to use skilled MNH CoC services. However, those women who were pregnant for the first time might be worried about complications and consequences since they had no previous experience. This anxiety may lead them to use MNH CoC services in contrast to those who had previous experience. As a result, high parity women may lack motivation to receive the recommended ANC services during their pregnancy. This probable explanation was supported by a systematic sub-Saharan Africa review where high parity women had significantly lower attendance of the fourth ANC along their pregnancy continuum (Okedo-Alex, Akamike, Ezeanosike & Uneke 2019).

Knowledge about the expected number of ANC visits among women has a major impact on completion of MNH CoC services in all models. Respondents who knew the expected number of ANC visits during pregnancy were about seven times (AOR=7.13, 95%CI=3.68-13.82) more likely to start the first ANC and complete the fourth ANC services during their pregnancy than those who did not know the expected number of ANC visits. Compared to women who did not know the expected number of visits during ANC, those women who had knowledge about the number of ANC visits were about six times (AOR=5.91, 95%CI =

3.04-11.49) more likely to utilise first ANC, fourth ANC and skilled delivery services along the continuum. The odds of completing the full CoC were approximately 13 times higher (AOR = 13.21, 95% CI = 6.29–27.72) among women who knew the expected number of ANC visits than among women who did not know (Table 4.11). This finding is consistent with a similar study conducted in Cambodia, where knowledge of recommended ANC was a facilitating factor for receiving the fourth or more ANC services (Yasuoka, Nanishi, Kikuchi, Suzuki, Ly et al. 2018). However, this study result contradicts a study conducted in Nepal, where knowledge of four ANC examinations during pregnancy was not statistically significant for the implementation of MNN CoC services (Silwal et al 2021). The higher completion of CoC services among women in the present study could be due to close follow-up by the HDA and HEWs in our system. Another possible explanation could be the existence of pregnancy conference strategies to increase pregnant women's awareness of participating in CoC services at recognised health facilities. These interventions and strategies may increase women's knowledge about the expected number of ANC services in the present study. In order to effectively increase the completion of CoC services, the information provided during the first ANC contact is mandatory.

Knowledge of maternal danger signs or complications significantly impacted completion of the fourth ANC service among study respondents. Study respondents who had knowledge of maternal danger signs or complications were four times (AOR=4.16, 95%CI=1.25-13.77) more likely to complete the fourth ANC visits than those who were not knowledgeable, but knowledge about maternal complications was not statistically significant for the completion of MNH CoC services (Table 4.11). The present study agrees with the study conducted in Arbamich Zuria district (Ethiopia) where knowledge of key danger signs was not statistically significant for the completion for the CoC (Haile et al 2020). However, the findings of present study are contradicted by several previous studies (Tizazu et al 2021; Chaka et al 2019; Muluneh et al 2020; Ahmed, Sultan, Abose, Assefa, Nuramo, Alemu et al 2022). Surprisingly, the odds of completion of MNH CoC services were decreased by 94% (AOR= 0.06, 95%CI= 0.02-0.21) in the first model, by 75% (AOR= 0.25, 95%CI= 0.12-0.54) in the second model and by 89% (AOR= 0.21, 95%CI= 0.09-0.51) in the third model among women who had knowledge of neonatal danger signs or complications compared to their counterparts. This finding also contradicts the fact that women with knowledge of

pregnancy complications were more likely to utilise maternal health services compared to their peers (Kifle et al. 2017). The possible difference that could arise in this study could be due to the different cutoff points for indicating good and poor knowledge of complications; This means that since most women had no formal education, they simply used CoC services for the health of their neonates and themselves rather than knowing the exact medical conditions of each complication.

In all three models, women who begin ANC services in the first trimester are more likely to complete MNH CoC services than women who begin ANC treatments after the first trimester. This study shows that women who began their ANC visit within one to four months were nine times more likely to complete the fourth ANC visit (AOR = 9.16, 95% CI = 5.33– 15.72) than women who started late in the first model. In the second model, women who started their ANC visit within one to four months were six times (AOR= 6.51, 95%CI= (3.94-10.76) more likely to complete the fourth ANC and SBA services than those who started later. The final model showed that women who started their ANC visits within one to four months were eight times more likely to complete MNH CoC services than those who started later (AOR= 8.31, 95%CI= 4.70-14.69) (Table 4.11). This significant association between timing of ANC initiation and completion of MNH CoC services has been documented in previous studies (Sserwanja et al, 2021; Sakuma et al 2019; Mohan, LeFevre, George, Mpembeni, Bazant et al 2017; Asrat et al 2020; Haile et al 2020; Tizazu et al 2021; Emiru et al 2020). Evidence suggests that starting the first ANC as soon as possible increases the frequency of ANC contact with providers, providing more opportunities for health diet counselling, essential ANC laboratory services, tetanus vaccination, and managing pregnancy-related medical problems. Trained health workers' regular contact with pregnant women aids in the development of intimate connections, which increases the possibility of using the next MNH CoC services (WHO 2016c; Ekholuenetable, Nzoputan, Barrow, and Onikan 2020). Evidence suggests that a positive relationship between pregnant women and their skilled provider instils confidence in the women, influences their choice of place of delivery, and influences their use of modern contraceptives (Atukunda, Mugyenyi, Obua, Musiimenta, Agaba et al 2020). Repeated or continuing counselling or health education helps pregnant women to avoid culturally linked harmful ideas and myths about late ANC attendance (Ewunetie, Munea, Meselu, Simeneh,

& Meteku 2018). In the current study, about 72% of women who began early initial ANC visits at 16 weeks of pregnancy completed the MNH CoC services.

Counselling and physical exam play an important part in women completing the fourth or more ANC services along the CoC. Women who had extensive counselling and physical examinations during ANC follow-ups were nearly three times more likely to complete the fourth ANC services than those who did not (AOR=2.7, 95%CI=1.14-6.42). Comprehensive counselling and physical examination during ANC are also predictors of MNH CoC service completion. Women who had comprehensive counselling and physical examinations during ANC follow-ups were twice as likely (AOR=2.04, 95%CI=1.17-3.89) to complete MNH CoC services as those who did not (Table 4.11). These results are supported by previous studies in which ANC counselling significantly increased the use of MNH CoC services (Oh et al 2020; Atnafu et al 2020; Muluneh et al 2020; Tadese, Tessema, Aklilu, Wake & Mulu 2022). Another research study found that women who received ANC counselling from a health professional were more likely to attend ANC at least once in their pregnancy (Okedo-Alex et al 2019). Counselling and physical examination may raise women's understanding of the need for MNH care, their ability to spot pregnancy risk indicators, their birth readiness, and the possible complications of inadequate care during MNH continuum. Such counselling increases women's autonomy in making health-care decisions, which might help them build a willingness to continue receiving MNH CoC services.

In all three models, the setting of ANC is a substantial predictor of the completion of MNH CoC services. In Model 1, women who received ANC in health centres were three times more likely (AOR=3.05, 95%CI=1.21-7.72) to complete the fourth or more ANC visits than those who went to health posts, private clinics, or received ANC at home. In model 2, the odds of completion of the fourth or more ANC and SBA among women were six times (AOR=5.60, 95%CI= 2.25-13.94) more likely than for those who received care at health posts, private clinics or at home. Future preference of place of CoC was significantly associated with the completion of the fourth or more ANC and SBA services. Those women who preferred to utilise CoC services at a hospital were three times (AOR=2.94, 95%CI= 1.10-7.85) more likely to complete first ANC, fourth ANC and SBA than those who preferred home and traditional birth attendance (TBA). The placing of ANC and PNC in Model 3 largely assisted in the completion of MNH CoC services among women. Women

who obtained ANC services in health centres were seven times more likely to complete MNH CoC services than women who received such care at health posts, private clinics, or at home (AOR= 7.19, 95%CI= 2.07-24.99). Furthermore, women who got ANC services in hospitals were five times more likely to complete CoC services than women who received such care at health posts, private clinics, or at home (AOR= 5.07, 95%CI= 1.88-13.66). Regarding the place of PNC, women who received PNC services in health centres were seven times (AOR= 6.9, 95%CI= 2.61-18.29) more likely to receive MNH CoC services than women who received ANC care at home (Table 4.11). The current findings were consistent with Ethiopian Ministry of Health (MoH) recommendations, which stated that facilities lower than health centres did not provide focused ANC services due to a lack of infrastructure and necessary medical equipment, whereas health centres or higher health facilities had higher standards and were expected to have higher MNH CoC completion. As a result, following the MoH guidelines improves the use of MNH CoC services (Ministry of Health 2019). However, the current study is contradicted by a study done in Ethiopia, which found that the place of the initial ANC visit had no influence on the completion of CoC (Dadi et al., 2021). The presence of higher quality maternity and newborn care across health centres and hospitals may have a larger importance for completion of CoC in the current study. According to studies performed in Ethiopia, women failed to complete CoC services if they encountered unmet service demands and a lack of equipment across health institutions (EPHI 2018; Jalu, Ahmed, Hashi & Tekilu 2019). The higher completion rate of CoC in the current research might be attributed to instructions given to health institutions where every woman receives her first ANC, fourth ANC, and competent delivery at health centres and hospitals. To achieve these objectives, all health posts have been given directions to refer women to health centres and hospitals. This might speed up the completion of MNH CoC services. Furthermore, an Indian study found that the location of ANC and PNC was not statistically relevant for the completion of MNH CoC services (Kushwaha, Mehnaz, & Ansari 2022).

This study showed that women who gave birth through C-Section were five times more likely (AOR=5.17, 95%CI=1.50-17.84) to complete the first ANC, fourth ANC, and SBA continuity of care than those who gave birth via assisted or spontaneous vaginal delivery. Women who gave birth through C-Section had considerably greater odds of completing

CoC (AOR= 9.68, 95%CI= 1.75-53.66) than those who gave birth via assisted or spontaneous vaginal delivery (Table 4.11). In accordance with this result, an Indian study found that the mode of delivery is substantially linked with ANC through the postpartum phase of CoC services (Kothavale & Meher 2021). Another study done in Ethiopia found that the type of delivery is a predictor of MNH CoC service completion. Women who delivered through C-Section had a greater chance of receiving CoC services than those who delivered via assisted or spontaneous birth (Tiruneh, Demissie, Worku & Berhane 2022). The greater completion rate of CoC by C-Section birth among women might be due to the significant risks to the lives of either the women or their neonates, or both, whereas vaginal delivery is perceived as normal and less life threatening. This indication may lead to the higher completion of MNH CoC services by respondents who delivered through C-section vs those who delivered vaginally. This hypothesis is supported by research in which C-section deliveries were performed due to medical indications such as placenta previa, aberrant presentation or placement of the foetus, or the existence of higher indications that could endanger both the mother's and neonate's lives, or one of them (Ayuningtyas, Oktarina, Misnanaiarti & Sutrisnawati 2018).

The odds of completion of CoC were significantly higher among women who were satisfied during their delivery services in their recent pregnancy (AOR=2.29, 95%CI= 1.14-4.59) than those who were dissatisfied during delivery from recognised health facilities. However, there was no statistical difference of CoC service completion among women who were satisfied and those who were dissatisfied during their recent delivery services from the recognised health facilities (Table 4.11). The study is supported by a previous study conducted in North Gondar Zone which indicated that the odds of completion MNH CoC services were higher among women who experienced satisfaction with the service delivery than those who were dissatisfied (Atnafu et al 2020). Another study also shows that satisfied women decrease the dropout from the continuum of care compared with those who were not satisfied (Tadese et al 2022). In Southern Ethiopia, a study indicated that providers' poor welcoming immediately resulted in dissatisfaction of the women and led to non-institutional deliveries (Asefa, Gebremedhin, Messele, Letamo, Shibru et al 2019). The possible reason could be that satisfied women may have a positive attitude towards

institutional skilled care services and may have good communication with skilled providers. These could make the women more motivated to attend institutional delivery.

Iron folic acid utilisation during ANC and information on CoC service variables were significantly associated for Models 1 and 2 respectively but these variables were not statistically significant for the completion of MNH CoC services among women in the study area.

Table 4.11 Determinants of complete CoC service utilisation among women who had given birth in the last nine months in Assosa Zone, Northwest Ethiopia (N=564)

Variables	Model 1 1st ANC+ 4th NC AOR (95%CI)	Model 2 1st ANC+4th ANC +SDA AOR (95%CI)	Model 3 1st ANC+ 4th ANC +SBA + PNC AOR (95%CI)
Religion			
Orthodox Tewahedo	**3.60(1.12-12.60)**	NS	NS
Muslim	1.89(0.62-5.80)	NS	NS
Protestant	1	-	-
Education			
Secondary and above	NS	0.89(0.33-2.44)	1.49(0.44-5.01)
Primary	NS	**2.26(1.17- 4.35)**	**2.53(1.23-5.20)**
Not formal education	-	1	1
Occupation			
Employee	**11.68(2.46-55.37)**	**20.19(3.50-116.53)**	**12.26(1.87-80.28)**
Others*	0.73(0.25-2.09)	1.04(0.36-3.02)	1.07(0.34-3.34)
Farmers	0.68(0.36-1.29)	1.06(0.58-1.93)	1.33(0.67-2.65)
Merchants	0.64(0.10-4.18)	0.84(0.18-3.97)	0.33(0.05-2.13)
Housewives	1	1	1
Partner support			
Yes	**3.52(1.12-11.12)**	**3.11(1.05-9.23)**	**4.94(1.43-17.14)**
No	1	1	1
Number of children			
Four and more	**0.44(0.21-0.92)**	NS	NS
Three	**0.32(0.15-0.69)**	NS	NS
Two	**0.39(0.19-0.79)**	NS	NS
One	1	-	-
Knowledge of maternal danger signs or complication			
Yes	**4.16(1.25-13.77)**	NS	NS
No	1	-	-
Knowledge of neonatal danger signs or complications			
Yes	**0.06(0.02-0.21)**	**0.25(0.12-0.54)**	**0.21(0.09-0.51)**
No	1	1	1

Variables	Model 1 1st ANC+ 4th NC AOR (95%CI)	Model 2 1st ANC+4th ANC +SDA AOR (95%CI)	Model 3 1st ANC+ 4th ANC +SBA + PNC AOR (95%CI)
Know expected number of ANC visits during pregnancy			
Yes	**7.13(3.68-13.82)**	**5.91(3.04-11.49)**	**13.21(6.29-27.72)**
No	1	1	1
ANC 1st visit started			
With 1-4 months	**9.16(5.33-15.72)**	**6.51(3.94-10.76)**	**8.31(4.70-14.69)**
More than 4 months	1	1	1
Place of ANC			
Hospital	1.08(0.33-3.34)	2.37(0.80-7.00)	**7.19(2.07-24.99)**
Health centre	**3.05(1.21-7.72)**	**5.60(2.25-13.94)**	**5.07(1.88-13.66)**
Health post, private clinic and home	1	1	1
Place of PNC			
Hospital	NA	NA	0.98(0.29-3.33)
Health centre	NA	NA	**6.91(2.61-18.29)**
Health post	NA	NA	2.92(0.96-8.92)
Home	NA	NA	1
Received comprehensive counselling and physical examination during ANC follow-ups			
Yes	**2.71(1.14-6.42)**	NS	**2.04(1.07-3.89)**
No	1	NS	1
Received iron folate			
Three and more months	**4.72(1.19-18.68)**	2.56(0.67-9.80)	NS
Less than three months	1.44(0.37-5.68)	1.16(0.30-4.50)	NS
Not at all	1	1	-
Had information on CoC			
Yes	NS	**2.13(1.06-4.30)**	NS
No	-	1	-
Mode of delivery			
C-Section	NA	**5.17(1.50-17.84)**	**9.68(1.75-53.66)**
Vaginal and assisted delivery	-	1	1
Delivery services			
Satisfied	NA	**2.29(1.14-4.59)**	NS
Not decided	NA	0.86(0.35-2.15)	NS
Unsatisfied	-	1	-
Know modern FP method			
Yes	NA	NA	1.96(0.93- 4.15)
No	-	-	1
Want to receive CoC services in the future			
Hospital	2.19(0.77-6.21)	**2.94(1.10-7.85)**	NS
Health centre	0.76(0.23-2.52)	1.28(0.41-4.01)	NS

Variables	Model 1 1st ANC+ 4th NC AOR (95%CI)	Model 2 1st ANC+4th ANC +SDA AOR (95%CI)	Model 3 1st ANC+ 4th ANC +SBA + PNC AOR (95%CI)
Health post	0.81(0.37-1.77)	0.87(0.42-1.80)	NS
Home and TBA	1	1	-

N.B. The assumptions for the application of multivariable logistic regression analysis were fulfilled by using Hosmer-Lemeshow test and Model 1 was adequately fitted at (P=0.467), Model 2 fitted at (P=0.485) and Model 3 fitted at (P=0.629). Variables whose P-value was less than 0.2 in the bivariate logistic regress were entered into multivariate logistic analysis. Significantly associated at P< 0.05 written in bold. NS= Not Significant in the bivariate logistic regression or Chi square test of significance. NA= the variable not introduced at the model during analysis

4.3.1.7 Factors affecting neonatal health service utilisation along the continuum of care

Residence affects the health of neonates during neonatal CoC services within 28 weeks of age after birth. Neonates of women who resided in urban areas were less likely (AOR= 0.32, 95%CI= 0.12-0.86) to become ill compared to those who resided in rural areas (Table 4.12). The present finding was consistent with studies conducted in Gamo Gofa and North Wollo which also indicate that residing in urban areas has significantly lower risk of developing neonatal illness (Gebremeskel, Gultie, Kejela, Hailu & Workneh 2017; Kassahun, Mitiku & Getu 2019). The higher risk of illness in rural residents could be because in rural areas women may not follow essential care practices for every baby. The other probable reason could be that rural women delay skilled delivery attendance because of lack of transport or long distances to reach health facilities. Following this, women could have premature rupture of membranes and neonates may have increased risk of infections. This probable reason is supported by the study conducted in Southern Ethiopia where premature membrane rupture was shown to have significant effect on adverse neonatal outcomes (Tsegaye & Kassa 2018).

Maternal complications during pregnancy and childbirth are predisposing factors for neonatal complications. In the present study, the history of maternal complications during pregnancy was statistically significant for the illness of neonates within 28 days after birth in bivariate analysis. However, this variable did not retain its significance after being adjusted with other variables (Table 4.12). In contrast to the present study, a previous study indicates that pregnancy-related complications during pregnancy, childbirth and

immediately after childbirth are significantly associated with adverse neonatal outcomes (Zelka et al 2022). This difference could be due to the difference in the study groups where in the present study only women who had live children were included but in the previous study both live and dead neonates were included.

Evidence shows that children from unintended pregnancies have been found to have a range of adverse health outcomes including adverse perinatal outcomes, higher rate of morbidity and mortalities, malnutrition, lower rate of vaccination and poor development (Abajobir, Kisely & Najman 2017). The present study found that wanted pregnancy decreased by 74% (AOR= 0.26, 95%CI= 0.10-0.66) the illness of neonates compared to those from unwanted pregnancies. Similar findings indicate that unplanned pregnancy has adverse birth outcomes. A study conducted in unintended pregnancy indicates the risk factor of low birth weight (Mekie & Taklual 2019). Another systematic study indicates that unplanned pregnancy is the risk factor for preterm birth (Abajobir et al 2017). This might be related to failure to utilise MNH CoC services which could be related to socio-economic problems.

Chlorohexidine (CHX) is a low concentration antiseptic and a novel formulation for umbilical cord care. Today 7.1% CHX concentration is implemented as part of the package of essential newborn interventions in more than 10 countries in Asia and sub-Saharan Africa (PATH 2017). The present study found that the odds of neonates' illness who received chlorohexidine immediately after birth were decreased by 58% (AOR= 0.42, 95%CI= 0.19-0.94) compared to those who did not receive it. In line with the present study, the pooled result of meta-analysis of five studies from developing countries shows that CHX cord application reduces neonatal sepsis by 32% as compared to dry cord care (Gelano, Bacha & Abate 2019). Another study also shows that the risk of umbilical cord infection is significantly reduced among CHX users (Khairuzzaman, Rouf, Sharker, Hossain, Matin et al 2018).

In this study, place of delivery during the CoC services was significantly associated with the illness of neonates in the study area. Those neonates who were born in other locations (health centres, health posts and home) were five times (AOR= 5.25, 95%CI= 1.45-18.96) more likely to became ill within 28 days after birth than those who were born in hospitals

(Table 4.12). The present study was supported by the survival study where the risk of death increased among home deliveries (Yismaw, Gelagay & Sisay 2019). The cohort study also supported that the risk of developing infection of neonates increased elevenfold among out-of-hospital delivery compared to in-hospital delivery within the first 72 hours of neonatal age (Chang, Chi, Jim, Chiu & Chang 2022). The illness at health centres, health posts and homes as compared to hospital could be due to lower infection prevention practices.

Table 4.12 Determinants of neonatal care service among women who had given birth in the last nine months in Assosa Zone, Northwest Ethiopia (N=564)

Variables	Neonate ill within 28 days		COR	AOR	P. value
	Yes	No			
Residence					
Urban	13	199	**0.46(0.24-0.87)**	**0.32(0.12-0.86)**	0.024
Rural	44	308	1.00	1.00	
Maternal complication history during pregnancy					
Yes	8	23	**3.09(1.29-7.41)**	2.94(1.00-8.61)	0.050
No	37	329	1.00	1.00	
Wanted pregnancy					
Yes	40	444	**0.33(0.18-0.62)**	**0.26(0.10-0.66)**	0.005
No	17	63	1.00		
Place of delivery					
Others	49	394	1.76(0.81-3.82)	**5.25(1.45-18.96)**	0.011
Hospital	8	113	1.00	1.00	
Received chlorohexidine					
Yes	20	241	0.56(0.34-1.06)	**0.42(0.19-0.94)**	0.034
No	37	266	1.00	1.00	

N.B. The assumptions for the application of multivariate logistic regression analysis were fulfilled by using the Hosmer-Lemeshow test and the model was adequately fit at (P=0.530). For explanatory variables having more than two categories, the overall significance of P-value was used. Variables whose P-value was less than 0.2 in the bivariate logistic regress were entered to multivariate logistic analysis.
Significantly significant at P< 0.05

4.3.2 Qualitative phase

The qualitative section mainly intended to explore and describe barriers that hinder utilisation of maternal and neonatal continuum of care services from recognised health facilities.

4.3.2.1 Demographic characteristics of participants

During this study, qualitative data were collected from 52 study participants. From the total number of participants, about 18 women who had given birth in the past nine months prior to this study, three health development army leaders, 13 HEW, two senior midwives, one religious leader, three kebele leaders, and 10 heads (MCH department heads, technical heads, and facility heads) and two experts participated.

The age of more than half (29) of the study participants ranged from 25 to 34 years. About 29 and 22 study participants were Muslims and Orthodox Tewahedo followers, respectively. Regarding education, more than half (30) of the study participants had attended college and university, 15 had attended primary and secondary schools, and the rest (7) had not attended formal education. More than half (30) of the study participants were employed, 17 were farmers and the rest were merchants, housewives or unemployed (Table 4.13).

Table 4.13 Demographic characteristics of study participants in Assosa Zone, Northwest of Ethiopia (N= 52)

Variables	Category	Frequency
Type of participants	Women who gave birth in past 9 months	18
	HEWs	13
	Midwives*	2
	Heads (MCH department heads, technical heads and facility heads) **	10
	Experts	2
	Religious leader	1
	Kebele leaders	3
	Health development team leader	3
Age	15-19	1
	20-24	6
	25-29	14
	30-34	15
	35-39	9
	40-44	4
	45-49	0
	>= 50	3
Sex	Male	12
	Female	40
Religion	Muslim	29
	Orthodox	22
	Protestant	1
Education	No formal education	7
	Primary	11
	Secondary	4
	College and University	30
Occupation	Farmer	17
	Housewife	1
	Employee	30
	Merchant	2
	Unemployed	2

*Midwives (BSc), ** Diploma midwives, BSc midwives, BSc nurses, Health officers (BSc) and Masters in Public Health Professionals

4.3.2.2 Barriers that hinder utilisation of the maternal and neonatal health continuum of care

Three themes emerged from the research questions during qualitative data analysis to respond to the research objective. The emerging themes were classified under individual level barriers, cultural and community level barriers and organisational level barriers. There were six sub-themes under each individual level theme, four sub-themes under the cultural and community related theme and twelve sub-themes under the health provision and organisational barrier theme (Table 4.14).

Table 4.14 Themes and sub-themes that influence the utilisation of maternal and neonatal CoC services in Assosa Zone, Northwest Ethiopia

Themes	Sub-themes
Individual level	Economic barriers for transportation and medication costs
	Lack of knowledge or awareness
	Workload
	Previous experiences
	Delayed 1st ANC start
	Perceived healthiness
Cultural and community related barriers	Religious barriers and perceptions
	Fear of notifying pregnancy
	Fear of using PNC services
	Husband's influence
Health provision or organisational barriers	Availability of CoC services (lack of equipment, logistics and medications)
	Accessibility of CoC services
	Acceptability of quality of CoC care services
	Lack of privacy and confidentiality
	Lack of compassionate respectful care
	Previous negative experiences with health facilities
	Service hours of health facilities
	Affordability of CoC services
	Experience of health workers
	Availability of ambulance services
	Distance of health facilities
	Road facility

4.3.2.2.1 Theme 1: Individual level barriers

Sub-theme 1.1: Economic barriers for transportation and medication costs

Direct and indirect costs were barriers that hindered maternal and neonatal health care utilisation as reported from different studies (Medhanyie et al 2019). In this study, economic

barriers were stated by most of the study participants. Most of the mothers were illiterate and farmers with low economic status. The study participants reported that even though maternal and neonatal health services were free, the mothers experienced difficulties with increasing transportation costs. Many mothers criticised having to buy drugs from private pharmacies and clinics which they could not afford. As participants stated, mothers could not afford the rising cost of transportation and medication for their CoC services. One participant said:

> *There were no medications at health facilities. We travelled more distances with high cost. Health workers ordered us to buy medication from private clinics (IDI-11, 28-year-old, farmer, woman).*

As identified by a Nepal study, completed CoC services were affected by distance from health facilities and higher cost of health services (Raj, Id, Chalise, Bista, Pandey, Thapa, 2019). Another sub-Saharan study indicated that the distances from health facilities were a significant problem and hindered the utilisation of MNH CoC services (Alem et al 2022). Many women may not get the required CoC services in time, even if they travelled long distances, due to the load of clients as stated below by another participant:

> *We travelled through public transport for about 18 KM to receive ANC services. The transportation was difficult, I reached lately, and many women were in the queue* (IDI-45, 26-year-old employed woman).

Inequities in a service utilisation study indicate that women in many low developing countries including Ethiopia have limited lifesaving services due to low socio-economic status and non-utilisation is concentrated among the poorest (Gebre, Worku & Bukola 2018). This huge gap was perceived by a merchant woman and the service provider as stated below. A participant who was a merchant explained:

> *During my present pregnancy, I had bleeding history and went to health centre. After they provided anaemia medicine (said Iron folic acid), they told me that my problem was beyond their capacity and ordered me to go to higher facilities. I went to private clinic, and they advised, counselled, and gave me another better anaemia medicine (said coated iron folic acid) and injection. My bleeding was stopped…, I did not want*

to tell you the cost I lost, huge amount of money. I did not know what happened if this was occurred for the poor (IDI-44, 40-year-old merchant woman).

A midwife who was a service provider added:

Most women suffered due to lack of transportation fee, close [clothes] for the neonate and food services before and after delivery. If the cases need referral, and we consulted to refer them to higher facilities, they resisted the referral and they said they did not have any thing (transportation fee, close for neonate and money for food) and they preferred to get services in this facility. For future, I fear that women decline to utilise the CoC services due to the economic burden (IDI-40, 28-year-old midwife).

In the Ethiopian context, to reduce maternal and neonatal deaths, all pregnant women are encouraged to utilise ambulance services to give birth in the health facilities. According to Ministry of Health guidelines, ambulances should link rural health posts with health centres and health centres to hospitals through a referral system if women need emergency maternal obstetric and newborn care (FMoH 2012). However, in the present study, most participants complained that many women had not utilised CoC services due to economic barriers for transportation. The challenges of transportation were explained by a kebele leader as follows:

The ambulance was bought through our community share, but our mothers, sisters and wives not served well. Last year three women and this year one women gave birth at home in our kebele because of women not able to pay increased transportation costs (IDI-35, 52-year-old male kebele leader).

A health extension worker supported the above challenges as follows:

Delivery in the health posts not considered as skilled delivery. However, some women preferred to delivery at health post due to feared transport costs and lack of free transport access (IDI-27, 37 years, HEW).

A district MCH director who leads the maternal, neonatal and child health services supported the ideas of the Kebele leader and HEW as follows:

> *Some women did not attend CoC services due to lack of transportation access especially distant kebeles and lack of transportation costs. During delivery, all women did not get ambulance services because district is very wide and low number of ambulances to cover the district. Women who live in far distances gave birth at health posts. Those Kebeles who have no health posts, the women gave birth at homes. The ambulance services provided one-way from home to health centre or hospitals due to shortage of fuel* (IDI-4, 35 years, MCH director).

These findings are in line with similar studies conducted in sub-Saharan Africa and South Sudan where economic barriers for transportation and medication costs are the most determining barriers that hinder the maternal and neonatal continuum of health services (Wilunda, Scanagatta, Putoto, Montalbetti, Segafredo et al 2017; Dahab & Sakellariou 2020). Another study conducted in Ethiopia also indicated that ambulance utilisation among women was low due to the few numbers of ambulances to women ratio, shortage of fuel, maintenance problems and unavailability of drivers (Tolossa, Bala, Mekuria, Ifa, Deriba & Dufera 2022).

Sub-theme 1.2: Lack of knowledge or awareness

A study conducted in Kenya indicates that the accuracy of information about menstruation periods and pregnancy among women was very low (Diamond-Smith, Onyango, Wawire & Ayondo 2020). Different studies have indicated that poor awareness contributed to a lack of skilled maternal health services utilisation (Mohamed et al 2021; Kea et al 2018). This awareness gap contributed to women's late initiation of ANC follow-up and women could not attend all recommended ANC services, as stated below by HEW who was a service provider at the community level:

> *Some women did not know their last menstrual periods. Due to this, they did not receive all recommended ANC follow-ups* (IDI-26, 32-year-old HEW).

A kebele leader explained that women did not attend ANC services because of awareness problems in their Kebele as follows:

Women not conducted ANC attendances from skilled provider due to awareness problems (IDI-35, 52-year-old kebele leader).

A health centre head added that women did not know the necessary services at the health facilities, as described below:

From the perspective of women, there were awareness gaps to understand all necessary services that have been given at health facilities (IDI-20, health centre head).

Along the continuum of care, lack of awareness or knowledge of women contributed to their drop-out or incomplete utilisation of CoC services. A study conducted in Ethiopia indicated that the majority of women had not received PNC services because of lack of information (Abota & Atinafu 2017) and the presence of knowledge gaps (Kea et al 2018) about PNC services. Similar to the previous studies, the present study also identified lack of awareness and the presence of knowledge gaps that influenced the completion of MNH CoC, as described by a woman as follows:

I did not receive PNC services from health centre because of lack of knowledge to receive it (IDI-9, 22-year-old female farmer).

Poor awareness among women contributed to a lack of skilled maternal health services and they could not understand the risks associated with complications. One of the service recipients described below:

… then I did not conduct PNC services because I did not have awareness to conduct it at health centres. After 37 days, I developed vaginal bleeding (IDI-11, 28-year-old female farmer).

The present findings are similar to those of the study conducted in Somalia, Kenya & Ethiopia where poor awareness among women contributed to a lack of skilled maternal health services utilisation along the MNH CoC due to late initiation of ANC, interrupted CoC services or not utilised PNC services (Mohamed et al 2021; Diamond-Smith et al 2020; Kea et al 2018).

Sub- theme 1.3: Workload

Workload is one of the barriers than hinder women from accessing maternal and neonatal continuum of care services. In the middle-income countries women have responsibilities for care of the household, taking care of children, and supporting their husbands during the harvest (Wilunda, Scanagatta, Putoto, Takahashi, Montalbetti, Segafredo & Betran 2016). A study conducted in Gambia indicated that women worked longer hours and did not attend institutional health care services (Lowe, Chen & Huang 2016). Workload at household level was a barrier for women to use the continuum of MNH services as the health extension worker described below:

> *There are barriers to hinder them to utilise the CoC services. Some women were busy at household level, and they could not start ANC within four months of their pregnancy* (IDI-26, 32-year-old HEW).

The present finding is similar to that of a previous study where women who had a workload at the household level were less likely to complete the fourth ANC visits because they started their ANC late. Different studies also indicate that women were unable to attend ANC, delivery and PNC services when there was no family support to take care of their other children (Wilunda et al 2016: Medhanyie et al 2019).

Sub-theme 1.4: Previous experiences and perceived good health

Completion of MNH CoC affected by previous experiences and perceived good health along the CoC path way. The low perception of risks resulted in missing one or more components of MNH CoC services especially the postnatal care, which were the most ignored services by service users in the study area. Low perception of risks along the CoC contributed to women not seeking maternal health services if they felt well during their postnatal period (Kifle et al 2017; Kea et al 2018). Many women who participated in this study confirmed that they did not seek care unless they had complications. One participant described this as follows:

> *I started ANC at four months of pregnancy and conducted four consecutive ANC follow ups… and delivered at HC and waited for about 24 hours. … I delivered my earlier child at home, I suffered more, there was no support, I laboured by myself but*

> *in cases of facility delivery I got supports from the health workers, labour facilitating injections provided me and my labour was easy. … After delivery I could not attend PNC because I and my neonate were healthy. If I were sick, I would go to health centre. I utilised FP services at 45 days after delivery to prevent short interpregnancy* (IDI-22, 35-year-old female farmer).

Unemployed women supported the above opinion as follows:

> *I started ANC within four months of pregnancy. I conducted 5-6 times of ANC follow-ups … I gave birth in the health centre and waited up to 24 hours. … Since I and my child were healthy, I did not go to health centre for PNC services* (IDI-23, unemployed 21-year-old woman with a diploma).

A study conducted in Eastern Ethiopia indicates that a low level of awareness and perceived absence of health problems were the identified gaps that caused the discontinuation of MNH CoC services from skilled providers (Tesfaye, Chojeta, Smith & Loxton 2020). The previous study conducted in Sidama indicates that women did not seek care unless they were sick and recognised their complications (Kea et al 2018). In the present study, one of the housewives stated her expectation as follows:

> *I was attended first ANC within four months of pregnancy, attended monthly follow-up till delivery, delivered to health centre and utilised FP after 45 days of delivery but I did not attended PNC because I expected that a woman can receive PNC services when she has bleeding, and her child has any health problems* (IDI-2, 25-year-housewife).

Lack of knowledge among mothers about the benefit of the MNH CoC is another reason for discontinuation of uptake of care at post-natal periods. Women perceived PNC as necessary only if there were obstetric complications (Mohamed et al 2021; Ibrahim, Mare & Nur 2022). They always stayed home until they became ill (Mohamed et al 2021). In the present study, women commented that they used maternal health services, especially PNC services, where they thought they had maternal and neonatal complications after delivery. An employed woman described this as follows:

I started first ANC at five months, completed all ANC services, delivered at health centre and waited at 24 hours at delivered health facility. … However, I did not go to health facilities to attend other PNC services because I felt healthy. I think someone went to the health facility when there are danger signs like bleeding (IDI-1, 32-year-old employed woman).

Absence or low perception of risk due to prior pregnancy-related complications hindered women from using routine attendance of follow-ups because they expected their pregnancy to be like the previous pregnancy (Wilunda et al 2017). There was a low risk perception due to no prior pregnancy-related complications, and health problems during pregnancy were trivialized. ANC attendance was not viewed as a routine exercise but linked to pregnancy complications. Previous complications contributed to the use of routine MNH CoC services while women who had safe home deliveries dropped the CoC services (Kea et al 2018). Previous experiences contributed to dropouts from the MNH CoC services among many women in the present study, as stated below by women, a health extension worker, health centre heads and midwives. One of the HEWs stated:

In our kebele, … However, there are barriers to hinder them to utilise the CoC services. Mostly, older women did not want to receive CoC services because there were no pregnancy, delivery and PNC risk experiences (IDI-26, 32 years, HEW).

Another CoC service user added:

Previous to this birth, I was delivered at home, and I did not conduct PNC services because I was healthy (IDI-46, 38-year-old female farmer).

One of the health centre heads added:

Since maternal death is rare conditions, women perceived that they had no previous health complications related to pregnancy, delivery and postnatal periods, they did not utilise the CoC services from the health facilities (IDI-7, 42-year-old health centre head).

A service provider midwife supported the ideas of the above participants as follows:

Most women did not have any complication history and they were healthy in their previous pregnancy and delivery. Due to this, women did not receive CoC services (IDI-39, 30-year-old midwife).

Another service provider midwife also explained that:

Those women who delivered their previous children and unfortunately, they were healthy, they thought that there were no problems if they were not use the CoC services (IDI- 40, 28-year-old midwife).

Previous healthy experiences and women's self-perception of their health status contributed to the discontinuation of MNH CoC services. These findings were similar to those of a study conducted in West Gojjam Zone in Ethiopia where the CoC was affected by the intra and postpartum complications, individual past experiences with pregnancy, delivery and postnatal periods (Tiruneh, Demissie, Worku & Berhane 2021). The self-perception was mostly due to a lack of knowledge and understanding of the benefits of MNH services which led to not seeking care until they recognised their illness (Mohamed et al 2021). A similar study also indicates that perception of the necessity of PNC occurred only when obstetric complications were recognised (Kea et al 2018). This indicates that MNH services in the study area were fragmented, where mothers' antepartum, intrapartum and postpartum contacts with the health system were a missed opportunity of linking CoC.

Sub-theme 1.5: Delayed first ANC initiation

As different studies including the WHO recommendation advise, initiation of the first ANC should be before 16 weeks of gestational age. This early initiation of ANC is critical to aid in early detection of pregnancy-related complications including low birth weight, still birth, intrauterine and foetal death (WHO 2016c; Manyeh, Amu, Williams & Gyapong 2020) Gebresilassie, Belete, Tilahun, Berhane & Gebresilassie 2019). However, in this study many women delayed initiation of the first ANC services. One of the service users stated:

I started ANC at fifth month of pregnancy and I did not utilise the fourth utilisation of ANC because of delayed ANC start-ups (IDI-36, 30-year-old female farmer).

Absences of complications among women affect the early initiation of ANC, which represents the entry point of the CoC. A systematic and meta-analysis study shows that women who experienced complications during pregnancy were more likely to start early ANC than those who had no complications (Tesfay, Loxton, Chojenta, Semahegn & Smith 2017). However, if the woman has had no problems in previous pregnancies and deliveries, she may not attend ANC services (Tsegaye, Abawollo, Desta, Mamo, Heyi et al 2021). Early initiation of ANC is also affected by the number of previous births or pregnancies. According to a study conducted in Jimma, Ethiopia, pregnant mothers who had more children were more likely to delay than those who had fewer children (Tadele, Getachew, Fentie & Amdisa 2022). Unintended pregnancy is another barrier for the early initiation of the first ANC booking because the mother does not want to expose their secrets to neighbours and health workers (Wolde, Tsegaye & Sisay 2019; Tsegaye, Abawollo et al 2021; Alemu & Aragaw 2018). On the other hand, women seek early ANC attendance when they experience pregnancy-related health problems in the early stages (Kotoh & Boah 2019). Pregnancy with an unknown last menstrual period results in the late initiation of ANC follow-ups, especially in women who use family planning, which results in an absence of menstrual periods, and this might deter women from starting their ANC early (Tiruneh et al 2021). The current study, like previous studies, shows that absence of previous complications, more pregnancies and unwanted pregnancy are the barriers to women continuing MNH CoC services, as indicated by many participants. One of the participants explained as follows:

> *Some women delayed to starting ANC within four months. Those women who were primigravida and had hyperemesis were started ANC within shorter months of pregnancy. Those women who delivered three and more, no history of complications for their previous pregnancy and delivery delayed to start ANC services. Some women hidden due to short intrapartum (unwanted) pregnancy. They feared their neighbours and HEWs. They started when their pregnancy was visible* (IDI-39, 30-year-old midwife).

Another participant added:

Health Development Army identified pregnant women from 2-3 months of their pregnancies. They referred to health post and we (HEWs) referred to health centre for ANC follow-ups. In most of the time, women delayed starting ANC. The dalliance occurred for those women who used family planning lacks regularity of their menstrual periods. After removal, their menstrual period delayed as of the previous. They delayed notifying their pregnancy up to 5-6 months of pregnancy **(**IDI-40, 26-year-old HEW).

Timely initiation of and continuous attendance of ANC improves maternal and neonatal health outcomes. The late initiation of ANC use is a determinant factor for MNH service discontinuation across the CoC pathways. This is in line with earlier studies where women who started their ANC in the later trimester, would not receive the recommended ANC visits, resulting in discontinuation of MNH services across the continuum pathway (Kikuchi, Okawa, Zamawe, Shibanuma, Naishi et al 2016; Sakuma et al 2019; Tiruneh et al 2021).

4.3.2.2.2 Theme 2: Cultural and community related barriers

Sub-theme 2.1: Religious barriers, community perceptions and husbands' influence

The present study identified that religion, community perceptions and husbands' influence were the most determining barriers for the continuity of MNH services, as explained by most of the study participants in the study area. One of the participants stated:

In rare conditions, a few women did not volunteer to receive CoC services from male health workers. They did not allow to see their body to other males other than their husband linked to religious thoughts (IDI-4 35-year-old MCH director).

Another participant explained:

During labour and delivery, women did not prefer to be delivered by males. They raised that their religion not allowed to touch females by males other than her husband. Some were linked to religion and may not want to receive the service (IDI-42, 26-year-old HEW).

The present finding is supported by a study conducted in Kenya. It shows that gender preference was an important barrier for women to access MNCH services because of

cultural and religious obligations. Women were uncomfortable with male providers in conformity with Islamic faith and their culture (Kisiangani, Elmi, Bakibinga, Mohamed, Kisia et al 2020). Another study conducted in Nepal found that women do not want to visit hospitals because they are uncomfortable showing their body parts to male doctors (Lama & Krishna 2014). The present study is also supported by an Ethiopian study where community misperceptions, cultural restrictions and negative attitudes to male midwives linked to religious faith among Muslim women were the most significant barriers for accessing CoC services (Tesfaye et al 2020). Women's misperceptions were the determinant factors that hindered them from utilising the components of postnatal services in the study area. This study identified these perceptions as family planning, decreased quality of breast milk, and female thinness, as described by community HEWs as follows:

> *Women did not want to take family planning because their menstrual period came after two years of delivery and without period, they think or believe that they could not be pregnant* (IDI-42, 26-year-old HEW).

> *The main barriers for our kebeles that hinder [women] to utilise CoC were presence of perceptions. Some women believed that family planning causes thinness of women, miss balanced of mensuration period and minimise the quality of breast milk. Some women refused to take FP after delivery* (IDI-27, 37-year-old HEW).

This study is supported by a study conducted in Kenya where women believed that family planning reduced the production of milk, and they did not utilise the family planning methods due to fear of side effects (Ooko, Ngure & Mativo 2019). Like the present finding, studies conducted in Ethiopia indicate that fear of side effects is one of the barriers to the utilisation of postpartum family planning among women (Geda, Nejaga, Belete, Lemlem & Adamu 2021; Tilahun, Bekuma, Getachew Oljira & Sene 2022)**.** Religious prohibition and husbands' influences were barriers for the women in family planning utilisation, as identified by many participants in this study. One participant explained as follows:

> *Except husband influence for family planning, in our kebele there were no barriers that hinder continuum of care utilisation* (IDI-29, 35-year-old kebele vice leader).

A community HEW added:

The main barrier for our kebeles that hinder to utilise PPFP was the presence of husbands' influence. Their husbands believed that family planning services [were] not allowed by their religion. Some needs more children. Some women feared divorce if they took family planning (IDI- 27, 37-year-old HEW).

A service provider midwife added:

There were religious influence especially Muslim followers. Most women resist PPFP due to fear of their husbands. Even they used, they removed when their fasting period started. (IDI-40, 28-year-old midwife).

The quantitative part of this study confirmed that lack of awareness, desire to have more children, partner opposition, poor perceptions (PPFP causes breast milk to dry up) were the barriers to PPFP use. In line with these barriers, studies conducted in Liberia and Ethiopia identified fear of side effects, partner opposition and the presence of religious restrictions as the major barriers that hinder women's utilisation of PPFP services (Kaydor et al 2018; Silesh et al 2022).

Sub-theme 2.2: Fear of announcing pregnancy

Individual and community behaviours influence the uptake of maternal and neonatal MNH CoC services. The tradition of secrecy about pregnancy during the early stages deterred women from timely initiation of ANC follow-ups. Fear of announcing the pregnancy was reported by many study participants and this practice may have affected the use of recommended ANC follow-ups in the study area. One of the HDA leaders explained as follows:

Some women did not notify their pregnancy at early times and delayed their first ANC follow-ups till 5-6 months (IDI-6, 50-year-old HDA leader).

A district MCH director added:

As culture, Benishangul community, when some women became pregnant, they did not want to tell their pregnancy early or within 16 weeks of pregnancy. Following this, the women did not receive the fourth ANC follow-ups. Some women hide their

pregnancy up to 30 weeks and some women became delivered without any ANC follow-ups (IDI-4 35-year-old MCH director).

In this study, according to the confirmation of health workers, HEWs and the Health Development Army, some women declined early notification of their pregnancies. Announcing pregnancy was considered shameful, especially among women who had short interpregnancy periods. They concealed the fact even until their pregnancy became observable by others, as stated by a kebele leader, HEW, MCH officer and religious leader respectively as follows:

Few women [hid] their pregnancy until it was observable. Especially, those women who were pregnant within less than three years of following their previous pregnancy were secret their pregnancy. They considered that it is shame to notify their short interpregnancy to health workers, community and HEWs (IDI-12, 41-year-old kebele leader).

Pregnant identification was conducted by women development army but feared to notify their pregnancies when their pregnancies were short period of intrapartum. In most of the pregnancies, if their pregnancy was happened before three years of their [previous] pregnancy, they hid their pregnancy even until birth (IDI-33, 36-year-old HEW).

In most of the time, those who had many children hidden their early pregnancies due to feared neighbour, culture and economic influences. Males influenced women not used family planning services and they became afraid to notify their pregnancies to women development army leaders (IDI-21, 36-year-old MCH officer).

Shame […] of notifying early pregnancies is the common barriers to use CoC services among few women in our kebele (IDI-13, Orthodox Tewahido Religious leader).

Cultural influences hinder the uptake of MNH CoC services in the study area. Women who did not have a husband concealed their pregnancy out of fear of the community and cultural influences. To some extent women believed that the foetus needed to be large

before announcing the pregnancy to others because they were unsure about the pregnancy's continuation. The reasons for not attending early initiation of ANC services or public revelation of early pregnancy were feelings of embarrassment experienced by pregnant women in the belief that it is presumptuous to talk of pregnancy when miscarriage cannot be ruled out. A community HEW and health centre head explained as follows:

> *Women who had husband, they notify their pregnancies but those who did not have husbanded hidden their pregnancies* (IDI-27, 27-year-old HEW).

> *Some women feared that early notification of their pregnancy. They may be influenced by cultures in rare conditions. They think that foetus need to be large to notify to others otherwise they may think there were miscarriages, and they lack recommended services that should be provided during that period* (IDI-7, 42-year-old HC head).

In agreement with the present study, other studies support the findings. Studies conducted in Ethiopia, Malawi and Ghana have indicated that the tradition of concealing pregnancy in early stages affects early initiation of ANC follow-ups (Kea et al 2018; Chimatiro, Hajison, Chipeta & Muula 2018; Kotoh & Boah 2019). The late initiation of ANC services attendance among pregnant women is common in Ethiopia (Debelo & Danusa 2022; Tsegaye, Abawollo et al 2021; Wolde et al 2019; Tesfaye, Loxton, Chojenta, Semahegn & Smith 2017). According to Kea et al (2018), the traditional concealment of pregnancy during the early stages prevents women from scheduling ANC appointments on time, because study participants believed that people should only know after the baby was born or when the abdomen grew large, as it was shameful to announce the pregnancy in case miscarriage occurred. Another study conducted in Nepal reveals that misconception and social barriers prevented women from attending ANC check-ups because they believed that going to health facilities during pregnancy was shameful. They also had misconceptions related to medication provided during pregnancy and believed that medicines during pregnancy caused enlargement of the foetus, resulting in difficulty during birth or even miscarriage (Lama & Krishna 2014).

Sub-theme 2.3: Fear of using PNC

In this study there were traditional beliefs (perceptions) and religious practices that hindered the completion of MNH CoC services among women. Generally, women did not attend postnatal care services in this study because of the community's traditional beliefs. Women feared that an imbalance in the air would make them and their neonates ill and they believed that they should stay home after giving birth. Because of these beliefs, women did not attend the PNC services if they were healthy, as stated by the study participant below:

> *The community believed that women better to wait at homes after delivery up to 40 days. They (community) believed that the body of the woman [was] not enough strong and she will [become] sick due to air imbalance. This [prevents] women not to receive PNC services unless they have any sickness* (IDI-13, 41-year-old kebele leader).

The postnatal care service delivery model in Ethiopia mainly depends on home-based care conducted by HEWs. According to the recommendation of the WHO and the Ethiopian Ministry of Health national guidelines, women should wait in the health facilities for 24 hours after delivery and receive the PNC services (MoH 2018). In addition, Ethiopia has implemented the mixed method of PNC service provision that comprises both institution-based care by health workers and home-based care by HEWs to improve the wellbeing of mothers and neonates (EPHI & ICF 2019). Accordingly, the modality of care was supported by the study participants in the present study. One of the participants explained:

> *During PNC, we have been conducted at home to home. Because women feared that they became ill due to imbalance of air* (IDI-18, 30-year-old HEW).

A service provider midwife added:

> *Most women did not conduct PNC services because the women said they could not want to come out from home until 40 days. Even when they were at health centre, they feared more, the light of sun. That is why the health system ordered us to follow the women for about 24 hours after delivery* (IDI-39, midwife).

These findings are supported by a previous study conducted in East Gojjam Zone (Ethiopia) where many family members restricted a woman who had recently given birth from leaving home because of the potential risks to the mother and neonate as they were vulnerable to Satan's evil. This restriction was reported by both Christian and Muslim followers (Zeleke, Wondie, Tibebu, Alemu, Tessema et al 2021). A similar study additionally indicates that women were not allowed to leave their homes until 45 days after delivery because, culturally, the community believed that women faced serious health problems and that if they went outside, they would bleed and might die (Agajie, Abera, Yimer, Yaregal, Muhidin et al 2021). Another study also indicates that there were perceptions that the woman was forbidden to leave the house or touch anyone for eleven days after delivery and women were not allowed to go to health facilities for PNC services (Lama & Krishna 2014). A systematic review study conducted among women in rural Africa indicates that cultural practices and beliefs strongly contributed to the preference of traditional maternal care over formal maternal care, which resulted in fragmented CoC services (Fantaye, Gunawardena & Yaya 2019).

4.3.2.2.3 Theme 3: Health provision or organisational barriers

Sub-theme 3.1: Availability and accessibility of CoC services

Poor access to MNH CoC services is a major contributing factor for MNH in resource-limited settings (Mweemba, Mapulanga, Jacobs, Katowa-Mukwato & Maimbolwa 2021). In this study inadequate availability and accessibility of the CoC services hindered the use of MNH CoC services. Almost all study participants (women, health development armies, HEWs, community leaders and health workers) complained that health facilities lacked the necessary medical equipment, medication, supplies and laboratory investigations. These deficiencies hindered maternal and neonatal continuity of care, as described by a female farmer, HEW, MCH officer, MCH director respectively:

> *I did not have personal barriers that hinder to utilise CoC services but there were…., lack of ultrasound and medication at health centre … the health centre is empty* (IDI-36, 30-year-old female farmer).

> *During their follow-up they (women) feared whether they will get the services or not after they travelled … high distances* (IDI-5, 33-year-old HEW).

The health facilities lack necessary equipment (ultrasound, stethoscopes, fetoscope and weight scale apparatuses), laboratory investigations and supplies, including medications) (IDI-21, 36-year-old MCH officer).

Women did not receive services due to shortage of supplies, drugs, lab reagents and medical equipment. When women did not get services at health facilities, they decline to attend the next follow-up visits (IDI-4, 35-year-old MCH director).

A study conducted in Ethiopia indicates that most lifesaving MNH drugs were not available in public health facilities and the overall availability of WHO priority maternal and child medicines was 34.02% (Hailu & Mohammed 2020), which creates a heavy burden for women, especially the poor. According to the participants' reports, a lack of medication in the health facilities forced women to purchase it from private clinics at high cost and they discontinued the CoC services. Alack of essential medical equipment like ultrasound affected the women motivation to receive the MNH CoC services. One participant reported as follows:

Women motivated to visit health facilities to get ultrasound services, but our health facility lacked this medical equipment, and they considered that the service provisions in between the consecutive visits are similar to the previous. Even now, our health centre has shortage of medications and laboratory investigations. When we prescribed out to private clinics, they interrupted their next follow-ups. Even we did not have metronidazole and gentamycin for sepsis management for long periods (IDI-39, 30-year-old midwife).

Another female service taker added:

Shortage of medication at health facilities were obvious and we were subjected to purchase from private clinics (IDI-14, 36-year-old female farmer).

The above idea was supported by a health centre head as follows:

The most barriers of hindering CoC utilisation of women in our catchment were lack of …, shortage of essential ANC laboratory investigation, shortage of medication

and equipment like ultrasound, haematocrit machine (IDI-20, 32 years, health centre head).

Another health centre head added:

> *In the context of the health centre, women did not receive all recommended essential ANC laboratory tests due lack of reagents even from the market. It is missed opportunity to prevent different diseases. Shortage or lack of medication, … prevent the utilisation of continuity of care* (IDI-7, 42-year-old HC head).

A previous study found that the availability of ultrasound services made mothers happy and increased their desire to attend their ANC follow-up appointment. Those pregnant mothers who received the services mentioned it to other pregnant women and motivated them to attend the ANC services (Roro, Aredo, Kebede & Estifanos 2022). However, in this study, some women who did not receive the ultrasound services interrupted the CoC services. Others complained about having to pay additional costs to travel to other health facilities further afield to get ultrasound screening during their pregnancy. One participant reported as follows:

> *There was watery gush during my pregnancy through vagina and this pregnancy was difficult for me. To solve the problem, I conducted four times of ANC follow ups. I requested the health workers to examine my foetus by medical equipment (said ultrasound). I went to health centre frequently for ultrasound examination, but they did not examine me. That was very challeng[ing] to travel with transportation frequently. They did not understand what I want but they simply told me I was fine. Due to this, I interrupted my follow-ups and delivered at home. After delivery, I did not conduct PNC services at health facilities because there were no danger signs for me and my child* (IDI-10, 30-year-old female farmer).

> *There is no ultrasound, and we were gone to private clinic and far distanced governmental health facilities to get the desired services* (IDI-1, 32-year-old employed woman).

Women also reported that health centres were expected to have more facilities than health posts. The infrastructure of the health facilities was not comfortable; there were no showers and toilets near the delivery rooms. One of the service takers complained as follows:

> *The distance between delivery room and toilet was far. During labour, all pregnant women want to go to the toilet regularly and it was not comfortable. The health centre has expected to have more facilities than health posts. It was long time to waited 24 hours after delivery without shower and I was embarrassed when I left the health centre with my blood* (IDI-1, 32-year-old employed woman).

The service provider midwife also supported the idea of the study participants as follows:

> *Our health centre infrastructure is poor; there were narrow rooms for ANC, delivery, and PNC. Every woman during ANC did not get quality counselling due to high cases loads up to 40-50 ANC followers per day in one room. In delivery, only the labour woman entered to labour and delivery room* (IDI-40, 28-year-old midwife)

A health centre head added that:

> *Our health centre has high load of cases and many women delayed to get timely services because scarcity of rooms or narrow rooms that prevent the use of continuity of care* (IDI-7, 42-year-old HC head).

Blood transfusion is one of the critical services for saving the lives of women who suffer severe bleeding during pregnancy, delivery and the postnatal period (WHO 2021). In the present study, there was a blood shortage at the health facility and a woman died on her way to the referral hospital, as reported by a midwife study participant below:

> *One woman came to health centre for labour and delivery. She was high risk woman and waited for about 30 minutes at health centre. There was shortage of blood, and we referred the woman to hospital. She … died while on the way to hospital* (IDI-40, 28-year-old midwife).

The current study also reveals that women discontinued continuity of care due to a lack of access to nearby health facilities, adequate road infrastructure, and trained health workers, as reported by a kebele leader and MCH director as follows.

> *In our kebele, the road was not well constructed, and most women delivered at health post due to lack of accessible nearby higher facility* (IDI-43, 58-year-old kebele leader).

> *Some women did not attend the CoC services due to unavailability of trained health workers at health facility level. If health workers not got in-service training, they could not provide the necessary services* (IDI-4, 35 years, MCH director).

In line with the present study, a similar study in Ethiopia indicates that lack of availability of medical equipment, medication and supplies affects the use of MNH CoC services (Kea et al 2018). In South Sudan, a lack of well-equipped clinics for delivery and a lack of necessary medication in primary health care led to a decline in the use of continuity services (Lawry, Canteli, Rabenzanahary & Pramana 2017). A study conducted in Tanzania indicates that medication and equipment were not constantly available in the health facilities (John, Mkoka, Frumence & Goicolea 2018). In Ethiopia, absence of clean water supply deterred women from delivering in the health facilities (Medhanyie et al 2019).

Sub-theme 3.2: Lack of food access

In the present study, despite many barriers to the women across the continuum of MNH care, they still attended health facilities to receive MNH services. A previous study in Assosa Zone discovered that lack of food and beverages at health facilities for mothers who had given birth was a critical challenge, particularly for rural women from remote areas (Agajie et al 2021). Most study participants reflected that lack of food and drink after delivery was a serious barrier to women remaining in health facilities for 24 hours after delivery. Some women requested to leave immediately after birth and some preferred to deliver at home. One participant said:

> *I did not have personal barriers that hinder to utilise CoC services. But, lack of food after delivery at delivered health centre influenced me to leave the facility immediately after I delivered* (IDI-36, 36-year-old female farmer).

Another midwife participant supported the above ideas as follows:

> *Some women did not accept to wait about 24 hours at health centres due to lack of food access. They asked us to discharge them immediately after birth* (IDI-39, 30-year-old midwife).

Another midwife said:

> *After delivery, we followed the woman for about 24 hours. When they were at waiting time, there were no food and drinks for them. Many women resisted to wait at the facility after delivery. They told us if they […] waited for 24 hours, they finished their money and could not get money for transportation and medication costs. We worried to tell and counsel them to stay for 24 hours after delivery for those women who resisted to wait* (IDI-40, 28-year-old midwife).

In the current study, women were subjected to high expenses for MNH services related to payments. Because of these challenges, they declined skilled birth attendance or preferred to deliver at home or health posts. Health development leader and a HEW study participant reported as follows:

> *Women must wait 24 hours after delivery. However, there was no food access around the health centre. Based on this, women preferred to give birth at home* (IDI-37, 40 years, HDA leader).

> *Women declined to skilled birth attendance because high service-related payments and lack of food during waiting time* (IDI-38, 32-year-old HEW).

In the Ethiopian health tier system of health, women are referred to health posts, then to health centres, and from health centres to hospitals, but lack of access to food and drink at rural health facilities causes women to oppose the referral chain and HEWs refer them directly to hospital. One HEW explained:

> *According to the district command, the health posts referred to health centre for delivery and we referred one woman to health centre using ambulance transport. The family expected to get food around there but there was no food at all. The family*

returned to the home through contract transport, and it took next day after she gave birth. Then, all community complained to go to that health facility, and we referred them to hospital directly (IDI-32, 30-year-old HEW).

This finding is supported by similar studies conducted in Ethiopia and Nepal where women faced challenges of lack of food and drink during the postnatal period at the health facilities, with some interrupting the required services and others preferring delivery at home (Shah, Rehfuess, Paudel, Maskey & Deluis 2018; Agajie et al 2021). A study conducted in Bangladesh supports the present study where women who accessed delivery services described a range of out-of-pocket expenses for travel, medicine, accommodation and food which deterred them from using MNH CoC services (Akter, Davies, Rich & Inder 2020).

Sub-theme 3.3: Acceptability of quality of care (CoC) services

Perceived quality of maternity care has an echo effect on the utilisation of MNH services across the CoC pathways. The experience of receiving poor quality of MNH CoC services during ANC, SBA and PNC leads to discontinuation of the pathways (Tiruneh et al 2021). In the present study, the study participants perceived poor quality services because of lack of medical equipment, essential medication, supplies and laboratory reagents at health facilities and women therefore discontinued the continuum. All study participants also shared that lack of quality services along the CoC pathways at health facilities caused them to decline using MNH services at health centres and they tried to travel long distances to access better quality services. One of the study participants expressed this as follows:

I believe that we can get ultrasound services during pregnancy. The health workers provided services for those women who had only high risks. I was happy when I […] heard [I was able] to see the sex of child during pregnancy through ultrasound, but I did not get the ultrasound scanning (IDI-17, 26-year-old female farmer).

A health extension worker supported the opinion of the woman as follows:

All women wanted to get ultrasound services, but they did not get what they want. Some women could not receive CoC services due to poor services provided by

health centres. Some women perceived that they went to Hospital rather than health centres. They perceived that the services were substandard (IDI-26, 32-year-old HEW).

The health centre head supported the opinion of the health extension worker as follows:

In our setup, I think there were no qualities of care. Many things required to fulfil. The services should be safe, easily accessible, easily affordable at all times at any time, the women got the services, but these were not fulfilled. Previously, the health centre provided operation services but there were no blood bank services; due to this challenge women died. During PNC services, the protocol said after delivery, the woman must wait about 24 hours, but the woman did not want to wait more than six hours because provision not comfortable as of their homes. In rare conditions women could think that they did not want to go to health facilities considering that they did not get anything there (IDI-7, 42-year-old HC head).

A district maternal and child director supported the above statements as follows:

In my opinion, there were lacks of quality services at health facilities due to lack of skills, medical equipment, medicines, essential ANC laboratory reagents, supplies and investigations for MNH CoC services (IDI-4, 35 years, MCH director).

Previous studies have also indicated that poor quality of MNH CoC provision at primary health facilities limit the completion of MNH services (Tiruneh et al 2021; Bohren, Hunter, Munthe-Kaas, Souza, Vogel & Gülmezoglu 2014). Because of perceived poor quality of MNH services at health centres, women preferred to attend MNH services at hospitals to receive an acceptable quality of services. Travelling long distances to hospitals influenced health workers to refer them to hospitals, which indicate that women want acceptable quality of services (Tiruneh et al 2021). An Indonesian study found that a lack of trust in the quality of care at public facilities is a deterrent factor (Akter et al 2020). Absence of the full package of MNH services causes dissatisfaction in women, which leads to discontinuity of MNH CoC services for their next visits (Tsegaye, Abawollo et al 2021).

Sub-theme 3.4: Poor counselling services

Lack of proper counselling during ANC and delivery and lack of appointments for PNC services hindered the use of PNC services from the recognised health facilities. Poor counselling on when to return to the health facility following giving birth was the common reason documented in a previous study (Amsalu, Talie, Gezimu & Duguma 2022). In the current study, women complained that the health workers had not provided appointments to attend PNC services and they had no awareness on PNC services. One participant reported that:

> *Health workers did not tell me about anything for other services and I did not return for PNC services* (IDI-24, 21-year-old female farmer).

Another woman added:

> *I did not conduct PNC services because health workers [had] not appointed me to return for PNC services and I did not have awareness to conduct it at health centre* (IDI-11, 28-year-old female farmer).

The HEWs supported the women's response as follows:

> *They waited at health centre for about 24 hours after delivery. We conducted other remaining PNC services at their homes. We did not counsel to follow PNC at health centre while they were healthy* (IDI-41, 27-year-old HEW).

In Ethiopia, PNC services are provided by health facilities and home-based approaches, with facility-based care provided within 24 hours after delivery and home-based care by HEWs (EPHI & ICF 2019). However, the quantitative part of this study indicates that about 12.1% of women did not use any PNC services. In this study a lack of proper counselling to women suggests that PNC services are not important unless there is illness. Health centre heads and merchant women reported as follows:

> *After delivery the first 24 hours PNC has been provided at health centres or hospitals and the rest have been conducted at house-to-house. The main reasons women not utilised the rest PNC were due to lack of proper counselling,*

appointment and women perceived that PNC [was] not required to attend from the recognised health facility. (IDI-20, 32 years, health centre head).

After two days, they said I developed anaemia and gave medication but there was no improvement. They discharged me but I had pain. I bought medication from private clinic by myself and got relief from my pain. I did not return to hospital because I did not know the need to return for screening of me and my child['s] health (IDI-44, 40-year-old merchant woman).

In many conditions women could think that they did not want to [attend] health facilities considering that they did not get anything there. One woman could not get the appropriate services during her visit because of shortage of supplies of reagents, laboratory investigations and other necessary medications; she may get for her next visits if she got appropriate counselling services (IDI-7, 42-year-old HC head).

The present findings are supported by the study conducted in Ethiopia where women who had no information about PNC services and those who did not receive counselling during the delivery period were less likely to attend the PNC services (Shibru, Belihu & Abdissa 2018). Another study found that poor counselling is a barrier to women using PNC services (Amsalu et al 2022).

Sub-theme 3.5: Lack of privacy (confidentiality)

According to Mohammed et al (2021), lack of privacy at health facilities was a barrier to women's use of MNH CoC services. A study conducted in Raya-Alamata (Ethiopia) indicates that more than half (53.5%) of respondents were not comfortable with the lack of privacy and confidentiality (Mesele 2018). Previous findings also revealed women's complaints about the lack of privacy and discomfort during childbirth when they were exposed to many health workers (Burrowes et al 2017). In the present study, women complained that there was no privacy during delivery because of the presence of many practitioners and the health workers did not allow relatives/companions to enter the delivery rooms. Some health workers were also careless and did not respect women's privacy, as described by the study participants below.

During delivery, many students were practiced at hospital and no privacy services at all. Mostly, they provide good services who had follow up at private clinics. The midwives followed me after many calls. Females especially shouted and not respectfully managed me (IDI-45, 26-year-old employed woman).

During delivery, the health workers supported me but there were challenges. I wanted to enter my sister together with me, but the midwives not allowed her to enter. I also wanted only the midwives that follow my labour, but many practitioners were there, and the door was opened, I was embarrassed, no privacy at all. Except privacy, thanks to lord, they provided good care to me and my neonate. Some health workers were good, but others were performed the CoC with negligence even they did not give greetings (IDI-25, 33-year-old employed woman).

These findings have been supported by many studies conducted in different parts where lack of privacy impeded the use of MNH CoC services. A study conducted in Sidama found that some women were not willing to expose their bodies to unknown health workers, which deterred them from giving birth at health facilities (Kea et al 2018). According to Tiruneh et al (2021), a lack of privacy and undue exposure of women's reproductive organs have a reverberation effect that discourages mothers from attending the continuum of care. Another study conducted in Nigeria adds that privacy is not maintained at government facilities (Esan, Maswime & Blaaum 2022).

Sub-theme 3.6: Lack of compassionate respectful care

Discriminatory attitudes of health professionals, lack of compassionate respectful care, and a lack of autonomy account for women not accessing maternal and neonatal health services from skilled providers. A study conducted by Tiruneh et al (2021) revealed that lack of supportive and compassionate care during labour and delivery was a major problem mentioned by mothers that hampered them from visiting skilled providers. In this study, study participants complained that health workers did not provide considerate care when the women shouted involuntarily during labour and delivery. One of the employed women, a HDA leader and HEW, stated as follows:

At hospital, female midwives were shouting [at] me, they said the newborn is going to die, why you became pregnant and the likes. I lost my energy. Males motivated me to push and supported me to deliver safely and provided necessary services to my neonate (IDI-1, 32-year-old employed woman).

When my team members went to hospital for delivery, I was travelling together. I observed some affronts when the women [were] shouting (IDI-31, 38-year-old HDA leader).

One woman delivered all her previous children at home. She is the wife of the kebele leader. We (HEWs) advised him to support her to deliver in the health centre. She became volunteer to deliver at health centre. During labour, when the woman requested to sleep in the couch, she refused to sleep there. The midwife became angry and ordered to her to leave the delivery room. The conflict was raised between her husband and the midwife (IDI-15, 30-year-old HEW).

The health centre heads and district woreda MCH director supported the above ideas as follows:

The main barrier to use maternity continuity of care was due to lack of compassionate respectful care of health workers…, women may get for their next visits if they got appropriate respectful services (IDI-7, 42-year-old HC head).

Some women did not receive compassionate respectful care services by health workers, and they did not return to receive CoC services for their next visits (IDI-4, 35 years, MCH director).

However, one of the midwives explained that those affronts against women during delivery were not done on purpose; they were done to save the lives of the neonates and the mothers. She expressed her opinion as follows:

Many women complained that non-respectfully care given by health workers especially during delivery. The health workers may shout on women to save her and her neonate' lives. However, they took it negatively. In my thinking it is unvoluntary

action done by health workers to save the lives of them (IDI-40, 28-year-old midwife).

A previous study in Ethiopia found that disrespectful care is a major barrier preventing women from using MNH CoC services, especially for skilled delivery attendance. Discrimination based on socioeconomic status, and poor client and provider interaction influence the use of the continuity of care (Tiruneh et al 2021). In the present study, many study participants indicated that the respectful care varied between the governmental and private clinics, where the private clinics provided the services respectfully. The study participants also complained that to get respectful care at governmental hospitals, women first attended private clinics since the providers were working in both facilities, as reported by one of the participants below:

There were no equal services provided for those who followed at private and hospital services. Those who followed at private got good services at government hospital level also. When foetus was silent or no movement for about three days, I went to health centre, but it was closed due to Epiphany. Then I went to hospital … examined by ultrasound and the foetus was alive. The doctor did not give me time, he told me if you want you came back on Monday. I paid about 400 birrs and came from rural area with travelling of long distances. However, services were not respectful. They must give respectful care and proper advice about the health status of my foetus. I went to private clinic and got good counselling services including expected date of birth (IDI-44, 40-year-old merchant woman).

Respectful maternal and neonatal care during child birth can enhance women's positive experiences. In addition, it ensures the clinical requirements for a safe childbirth process. Respectful maternal and neonatal care assists to meet women's psychological and emotional childbirth needs. However, lack of respectful care leads to non-use of the critical maternal and neonatal CoC services with negative consequences. Many HEWs explained that service providers at health centres did not provide equally for all women and many women complained about their service provision, as stated below:

Previously the women preferred health centre rather than hospital. Last year, the health centre delayed the referral of one woman and her neonate died but she

(mother) was saved. After that, those neighbouring women hate to go to the health centre, and they complained health workers have partiality acting and did not follow us properly. When we conducted maternal conference, "*they (said women) said that the health providers followed other women every five minutes, but they did not follow us … even we shouted due to the head of neonate came out"* (IDI-5, 33-year-old HEW).

Similar previous studies support the findings of the current study that a lack of compassionate respectful care contributed to discontinuing of the care (Tiruneh et al 2021; Bobo, Kasaye, Etana, Woldie & Feyissa 2019; Adatara, Strumpher & Ricks 2019). According to the findings of Bobo et al (2019), disrespect during childbirth is a common experience or barrier for mothers in western parts of Ethiopia, causing low attendance of skilled birthing care. Many previous studies have indicated that respectful maternal and neonatal care was low (Jemal, Samuel, Geta, Desalegn, Gebru et al 2022; Yalew, Nigatu, Yasin, Kefale & Damtie 2022).

Sub-theme 3.7: Previous negative experiences with health facilities

Previous negative experiences contributed to poor utilisation of MNH services. A study of pastoralist women of Ethiopia shows that women who had negative previous experiences declined to use the next maternal and neonatal health services (Jebena, Tesfaye, Abashula, Balina, Jackson et al 2022). A study conducted in Ethiopia found that women did not intend to visit health facilities for their current pregnancy and would not recommend maternal health services to others because they did not feel they received proper care during their previous visit (Kea et al 2018). In the present study, women who had previous negative experiences at the health facilities did not want to use MNH CoC services at all or shifted to another health facility, as described by the study participants. One woman said:

Once upon a time I went to health centre together with one laboured woman, they did not provide care quickly even the woman shouting, they did not concern about her. I also saw when they cut the neonate through scissors, and I fear since then (IDI-3, 24 years, employed woman).

Another study participant added:

Some women said health workers did not provide services properly at health centres. Previously, the women preferred health centre rather than hospital. Last year, the health centre delayed the referral and her neonate died and she was saved. After that, those neighbouring women hate the health centre to use maternal health services (IDI-5, 33-year-old HEW).

Similar to the current findings, the previous study conducted by Tiruneh et al (2021) confirmed that delays in care and service provision at health facilities, particularly during labour and delivery, created disappointments for women and the community. A study conducted in Somalia reports that negative experiences were a barrier to seeking health care services (Mohammed et al 2021). Previous negative outcomes contributed significantly to the decline in the use of the next continuity services (Shallo, Daba & Abubekar 2022).

Sub-theme 3.8: Lack of timely services

Long waiting times contributed to low maternal and neonatal CoC services. According to a study conducted in Somalia, women went to the facility in the early morning and returned home without receiving any services because there were so many people in line (Mohamed et al 2021). The present finding shows that women complained that travelling long distances followed by high case load at the facilities contributed to long waiting time and therefore they declined to follow up with the facility again. A farmer woman shared her experiences as follows:

I started ANC follow up within four months … the transport cost is huge reaching 80 birrs. …my follow up was on Thursday. I got transportation on Wednesday, and I went to the health centre to attend my ANC follow-ups. I waited from early morning to afternoon without get the services. They refused me to provide ANC services. They replied to me to burdened them while I went on the market day (IDI-16, 33-year-old female farmer).

Lack of timely maternity care services results in negative health outcomes. According to the health development army leader, the woman arrived at the health facility on Friday and the provider did not provide the services, causing the mother to lose her neonate.

The woman went to hospital on Friday and the health workers appointed on Monday reasoning time has gone and lack of bed. After that she went back to hospital and due to these delayed services, she lost her neonate. The services provision by health workers not good but "Yetyidersal New Enji" said where we are going (IDI-6, 50-year-old HDA leader).

Another woman expressed her suffering as follows:

My expected delivery extended about 22 days. I went to private clinic to receive counselling on how I could easily to deliver. They advised me to go to hospital and communicated them. I went hospital ANC clinic and ANC provider ordered me to go to delivery ward of the hospital. In delivery ward, when I told the doctor (health provider), he gave me one bed, told me to wait him there, I had no labour at all, waited him until evening time, he changed his cloth[es] and left the hospital. I went to private clinic again and the specialist told me that he operates me on Monday at hospital. At the end of the day, I started labour and order health workers to follow me. I had severe pelvic pain, and I shouted ooo—ooo—oo. I feared this child also will die as the previous and I cried more. One of the providers said he call the specialist and the specialist immediately came and I told the specialist to […] operate me. After he (specialist) examined me, he told me he wanted to operate me if I want the child. I accepted to deliver though operation and I gave birth through CS, Alhamdulilahi! said thanks to God (IDI-44, 40-year-old merchant).

Another woman complained that she had experienced severe bleeding after giving birth, but that the health workers were unavailable at the weekend, as expressed below:

After 37 days of delivery, I developed vaginal bleeding. I went to private clinic to seek treatment because I heard that the health workers were not work[ing] at weekend days (IDI-11, 28-year-old farmer).

Other studies, similar to the present findings, show that waiting a long time for the desired services leads to patients declining to use of CoC for their subsequent visits. The study by Mugo, Dibey, Damundu and Adam (2018) identified that women complained about long waiting times for receiving services at health facilities. Another study found that the way the

woman perceived the services at a health facility was an influential factor in maternal health care service utilisation. Longer waiting time discourages women to seek their future maternal CoC utilisation (Kifle et al 2017). Another study also identified that waiting for the whole day for each appointment of ANC follow-ups directly influenced their formal or informal employment, child care and other household tasks which interrupted their utilisation of CoC services (Gong, Dula, Alberto, Albuquerque, Steenland et al 2019).

Sub-theme 3.9: Affordability of CoC services

The Ethiopian government has subsidised maternal, neonatal and child services to make them affordable, acceptable and available. However, previous findings indicate that most medicines were unaffordable (Hailu & Mohammed 2020). Another study found that women experienced a financial burden in utilising maternal health services and also had to pay for some services related to unofficial costs to access care even where formal exceptions existed (Banke-Thomas, Ayomoh, Abejirinde, Banke-Thomas, Eboreime et al 2021). The current study discovered that there was a lack of medication at health facilities and the women could not afford to buy these from private clinics at high cost and hence they discontinued the critical CoC services. One of the participants shared her experiences as follows:

> *There were no medications at health facility. Health workers ordered me to buy medication from private clinics, but I could not afford to buy it* (IDI-11, 28-year-old farmer).

Another participant added:

> *After two days of delivery, I was sick and returned to hospital. There were many backs and forth between emergency and maternity departments and the provider informed me [I] had infections and I [was] hospitalised for about 20 days. In principles, the services are free, but I bought more than 10,000 Ethiopia birr for medications including gloves from private pharmacies and this is huge many for one mother. My supporters left me together with my child to find the medications at night times and I suffered more at those times* (IDI-8, 28-year-old employed woman).

The present study findings are similar to previous studies in which the government covered only the basic services, but women bore a significant burden in terms of other service-related cost in low-income families, especially rural residents. In some conditions women postponed necessary care until they found finance it, even when their complications became serious (Miteniece, Pavlova, Shengelia, Rechel & Groot 2018). Evidence suggests that, despite the fact that MNH services are free, women paid for them in hospitals, which violated the rule of free maternal health service provision (Kea et al 2018).

Sub-theme 3.10: Lack of health workers' skill

Lack of trust in the competence of providers leads to women's dissatisfaction, especially in the intrapartum care at health centre level (Tiruneh et al 2021). In the current study, almost all study participants perceived that health workers working at health centres did not provide quality services because of skill gaps. This prevented women from utilising MNH CoC services from the recognised health facilities. Study participants complained that health workers resisted referring women even when they had life-threatening complications and that some went to higher levels without adhering to the health tier system. One of the participants said:

> *My sister had blood pressure during pregnancy, her blood pressure was raised during labour, they did not do anything while she was suffered. Then with our pressure, they referred her to hospital. At hospital, they provided anti-labour drugs and finally she delivered by CS. Most of women in my team also complained that the health workers working at health centres does not have willingness to refer to other facilities* (IDI-37, 40-year-old HDA leader).

Another HDA study participant supported the above idea as follows:

> *Most of women in my team also complained that the health workers working at health centre does not have willingness to refer to other facilities. Women themselves went to hospital rather than by referral* (IDI-37, 40-year-old HDA leader).

Evidence suggests that some healthcare professionals lacked the necessary experience and skills to provide adequate healthcare services, which is consistent with the ideas presented above (Burrowes et al 2017). A previous study shows that skill deficiency

regarding identifying the foetus leads to home delivery (Tiruneh et al 2021). The current study confirmed that lack of experience and skills leads to mismanagement of cases, as reported by participants. An employed woman shared her experiences as follows:

> *In my previous pregnancy the foetus died but the health workers at health centre told me that the foetus was alive. But I predicted that the foetus was not alive, and I went to hospital. I [was] screened with ultrasound and the foetus was not live. During my present child follow-up, I attended the follow-up to avoid challenges happening during my previous delivery. … I had no satisfaction because I assumed they did not have skills and knowledge. As of my expectation, they told me this pregnancy became aborted because I became pregnant within six months following my previous still birth. Then I felt stressed. They did not keep my psychology; it was not happening, and I was hopeless* (IDI-1 32-year-old employed women).

According to a similar previous study, women or their family usually request timely care or timely referral. Clients' requests result in poor interaction with the health centre providers, which is link to providers' perceived lack of skills (Tiruneh et al 2021). In the present study, a midwife shared her experiences as follows:

> *Some women need doctors. In our HC there is no doctor. When their labour extended, they request us to refer them to hospital and want to deliver through CS to save their life. In rare cases, women dialogued us to refer them. This may be due to lack of trust or not believe with us and considered we did not do anything if there was something happening* (IDI-39, 30-year-old midwife).

Poor intrapartum care prevented women from continuing their use of skilled delivery attendance at health facilities (Tiruneh et al 2021). According to one of the HEWs, women gave birth at home due to the incompetent midwives' lack of skills at health centres.

> *One of the women delivered at home due to health provider advised her that her expected date birth not reached. Then she returned to her home and immediately she gave birth at home. We tried to work to declare home delivery kebele, we followed her, but we were not lucky* (IDI-18, 30-year-old HEW).

Although midwives were assigned at health posts to provide emergency delivery services for distant women, they did not perform delivery services, according to the district MCH officer. Following this, the information was disseminated to the community and women did not use the CoC services at health post level.

> *In health posts midwives were assigned to work emergency activities especially for long distances but they lack skills to provide the required maternal services. In the conditions where the women [were] not satisfied with the services provided by health facilities, they told to the community and the other women may not utilise the services* (IDI-21, 36 years, MCH officer).

The kebele leader also expressed the view that health centre professionals had poor skills and most of their kebele women did not want to receive MNH CoC services, as described below.

> *Most of the community were born at home level in the past couples of years. They (women) had no health problems since they gave birth of their previous children, they said "no one can play with us"* (IDI-35, 52-year-old kebele leader).

Previous research has shown that a lack of experience or skills of health workers is a critical factor that prevents women from using the continuity of care, as confirmed by the current study (Burrowes et al 2017; Bohren et al 2014; Tiruneh et al 2021). The absence of qualified health professionals in the rural areas forces women to bypass to other facilities to get better services (Mesele 2018) and quality of care influences the health outcomes of women (Miteniece et al 2018).

Sub-theme 3.11: Availability of ambulance services, distance of health facilities and road facilities

Lack of road access, bad roads, long distance from health facilities and lack of transportation availability are the major barriers that prevent women from the uptake of MNH CoC services. Health facilities were sparsely located, and bad roads, especially during rainy seasons, and lack of safe transportation led women to discontinue MNH CoC services (Mweemba et al 2021). Poor road conditions, long distance from the health facilities and inadequate transportation were the commonest barriers that hindered the

continuity of maternal and neonatal care services (Tiruneh et al 2021). Another study showed that topography between residential areas of mothers and health facilities was a major challenge to accessing health services (Tsegaye, Abawollo et al 2021). According to all study participants, long distances, lack of roads and transportation access made it difficult for women to access the MNH CoC services. One participant said:

> *The road is very difficult, in our setup there is river, previously the community constructed the bridge but now they did not do it and the woman travelled long distances to reach health facilities to received ANC services* (IDI-6, 50-year-old HDA leader).

Another study participant added:

> *Some women did not attend CoC services due to lack of transportation access, especially distant health facilities, lack of transportation costs and lack of road access to health facilities* (IDI-4, 35 years, MCH director).

In Ethiopia, the inaccessibility of health facilities, due a lack of transportation and high opportunity costs, is a persistent impediment for seeking maternal and neonatal health care services (Tiruneh et al 2021). A study conducted in Raya-Alamata indicates that most women could not afford the cost of transportation to receive maternal health care services. Women travelled from rural areas using Bajaj on contract at unaffordable cost in the absence of ambulances (Mesele 2018). The Health Development Army explained that in summer there was no transportation access, especially at night. Family and Health Development Army leaders tried to contract Bajaj for transportation at high cost, but the Bajaj owners declined to provide transportation services because the road was challenging, and women consequently gave birth at home.

> *Transportation is challenging especially at summer seasons. In summer season addition to night, the Bajaj did not want to give services even with high cost. Accordingly, three women delivered at their home* (IDI-37, 40-year-old HDA leader).

In low-income countries many factors influence the use of facility delivery. The economic barrier and being unable to afford transportation cost and service fees were influential

factors (Langlois, Karp, Serme & Bicaba 2016). This financial barrier was the impetus for the Ethiopian government to implement a policy of providing free ambulance services to facilitate referral (FMoH 2010). However, because of fuel shortages the ambulance could not provide services and the women gave birth at home. One of the female farmers and an MCH officer complained as follows:

> *My labour had started at night time. I informed the HEWs to call ambulance and she called the ambulance. Then they informed us there was no fuel. The family tried to find bajaj but there was no fuel. Flood and labour are the same and I gave birth at home* (IDI-14, 36-year-old female farmer).

> *The road facilities and transport access for rural kebeles [are] difficult due to presence of rivers and mountainous. These difficulties worsen at summer seasons. … but after the last two years, the ambulance services were not good due to shortage of fuels and many women delivered at homes* (IDI-21, 36 years, MCH officer).

The health extension worker and kebele leader mentioned that when they called the health centre for ambulance services for referral, the ambulance was already in use, serving other women.

> *Most of the women did not get ambulance services during delivery. When we called them, they replied that the ambulance went to serve another woman* (IDI-26, 32-year-old HEW).

The kebele vice administrator added:

> *During labour, we transported women from Gotts to health post through by stretcher. We called ambulance but, in some cases, they responded that the ambulance was gone to other kebeles to provide transportation services. Due to this some women delivered at health posts. In most of the cases women [did] not want to go to hospital due to transportation problems* (IDI-30, 35-year-old kebele vice administrator).

The HEW and midwives complained that women gave birth at health posts and at home because the drivers' phones were not working at the time of the call:

> *The barrier that hinders the CoC services was absence of transportation during delivery. …, but one woman delivered at home. When we called the ambulance driver, his phone was not working, we called to head of health centre, and he informed us to send the ambulance soon. The woman gave birth with assistance of us. During our assistance we had no delivery supplies* (IDI-15, 30 year-old HEW).

A midwife who was a service provider added:

> *A woman delivered at home and come to us for placenta removal. Her husband said he was absent at home, when they called to ambulance to get ambulance services, the phone was not functional, she has no money at hand, and she delivered at home* (IDI-39, 30-year-old midwife).

The health centre head supported the above HEW and midwife's experiences as follows:

> *In our catchment nine kebeles are easily accessible but others were challenging during summer due to presence of rivers and muds for vehicles. During delivery, some women did not get the access of ambulance transport due to absence of networks at night time and shortage of fuel occurred. In most of the time, women got ambulance services from their homes to our health centres. Far distant women did not utilise all ANC services at health centre level* (IDI-7, 42-year-old HC head).

The study participants, particularly the kebele leaders, complained that while the ambulance had been bought with community funds, their kebele women did not receive ambulance services to attend skilled delivery care. One of the kebele leaders reported:

> *The ambulance was bought through our community share, but our mothers, sisters and wives [are] not served well. Due to transportation problems, last year three women and this year one women gave birth at home since there were poor road infrastructure and presence of mud at summer* (IDI-35, 52-year-old kebele leader).

A community HEW added:

> *The major barriers that hinder the CoC were lack of transportation during labour and delivery. They complained that ambulance was bought with our community share, but they (women) did not get the services. The road is not suitable, and they preferred to go [to] another far distant health facility. That facility requested their referral paper from their nearest health centre, and they suffered to get services immediately* (IDI-33, 36-year-old HEW).

Lack or shortage of transportation services following not being able to pay transportation costs was reported by a study conducted in Ethiopia (Tsegaye, Abawollo et al 2021) In the current study, most women preferred hospital delivery, but some preferred health-post delivery due to a lack of transportation and high transport costs, as reported by one of the participants below.

> *Most of the kebele women did not want to take CoC services from the HC due to disagreement of the site of the institution. They preferred to hospital. … the main barriers for our kebeles that hinder to utilise CoC were lack of transportation. Some women preferred to delivery at health post due to feared transport costs* (IDI-27, 37-year-old HEW).

Many studies have found that long distances from health facilities, a lack of transportation, and a lack of road access are the major barriers that prevent women from accessing MNH CoC services (Mweemba et al 2021; Tiruneh et al 2021; Ahmed, Hamelin- Brabant & Gagnon 2018). Similar studies conducted in Bangladesh, Georgia and Ethiopia indicate that long distances prevent women from seeking skilled birth services (Akter et al 2020; Miteniece et al 2018; Tsegaye, Abawollo et al 2021). High transport cost, poor road infrastructure and lack of transportation are the barriers that hinder utilisation of maternal services (Ali, Dero, Safera & Ali 2018; Shah et al 2018; Dahab & Sakellariou 2020). An Ethiopian study found that high transportation cost is a delay factor in attending skilled birth service (Tesfaye et al 2020). Other studies indicate that a lack of ambulance transportation resulted in home delivery due to phones being busy or a lack of network, or being too busy serving other women, or the ambulance being serviced. A study conducted in Sidama shows poor availability of district ambulances because of an array of reasons such as drivers not being cooperative, lack of fuel, and difficult roads. Because of these reasons

women delivered at home (Kea et al 2018). A similar study conducted in Ethiopia supported the present study that women delivered at home because ambulances arrived very late when they needed it (Kifle et al 2017).

4.4 CONCLUSION

The study employed a convergent mixed method design, using both quantitative and qualitative data. The quantitative data were collected first through an interview administered questionnaire from 564 respondents, followed by a collection of qualitative data through in-depth interviews from 52 study participants.

4.4.1 Quantitative phase conclusion

Except for the fourth ANC attendance, the study indicated that MNH services were used rather often. The coverage of the first ANC, fourth ANC, SBA, and PNC attendance was 95.0%, 62.6%, 94.5%, and 87.9%, respectively. However, MNH CoC services were not widely used. Only 53.7% of women who had given birth in the previous nine months completed MNH CoC services from first ANC to PNC. The completion of MNH CoC services in the study area decreased from first ANC to PNC services and many women had not benefited from critical maternal and neonatal lifesaving services.

Factors associated with the uptake of MNH CoC services were the occupation of women, partner support, women's knowledge of neonatal danger signs, women's knowledge of the expected number of ANC visits, and time of first ANC booking. The place of booking for and undertaking ANC services and receiving comprehensive counselling and physical examination during ANC were found to be statistically significantly associated with completion of women's MNH CoC use from recognised health facilities in all three models.

4.4.2 Qualitative phase conclusion

The barriers that hindered the completion of MNH CoC services were categorised as individual barriers, cultural and community related barriers, and health provision or organisational barriers. Transportation and medication costs, lack of knowledge or awareness, presence of workload, delayed first ANC booking, previous experiences (absence of complications), and perceived good health were the most significant factors that prevented women from completing MNH CoC services in the study area. The study

further identified religious influences and perceptions, fear of announcing early pregnancy, fear of using PNC services, and husbands' influences as the major barriers under the cultural and community related theme that hindered the completion of MNH CoC services.

Health provision related barriers were found to be the most influential in hindering completion of the MNH CoC services in the study area. Unavailability of medication, equipment and supplies, inaccessibility of health facilities near the women, and lack of transportation were the facility barriers that caused women to discontinue the CoC pathways. The study further confirmed that health workers were not in a situation to provide the essential lifesaving services due to shortage of medication, medical supplies and medical equipment.

The present study further concluded that lack of acceptable quality of CoC services because of lack of medication and medical equipment, poor privacy and confidentiality during service provision, and lack of compassionate, respectful care along the CoC pathways prevented women from completion of the MNH CoC services.

The next chapter presents a proposed model of a continuum of care for reducing maternal and neonatal deaths in Assosa Zone, North Western Ethiopia.

CHAPTER 5:
PROPOSING A CONTINUUM OF CARE MODEL FOR REDUCING MATERNAL AND NEONATAL MORTALITY IN NORTH WESTERN ETHIOPIA

5.1 INTRODUCTION

The continuum of care (CoC) for maternal and neonatal health care is recommended as advantageous over individual service provided to achieve the global targets of ending preventable maternal and neonatal deaths (Haile et al 2020). Reducing maternal and neonatal death as well as contributing causes of death requires the development of an appropriate model.

In this chapter, Chapter 5, the findings of the research are summarised with a focus on MNH CoC utilisation. Based on the research findings, an alternative MNH CoC model is suggested for reducing maternal and neonatal mortality in North Western Ethiopia. The development of an appropriate model is essential for making a significant difference in reducing maternal and neonatal mortality in North Western Ethiopia. The chapter argues that significant reductions in maternal and neonatal deaths could be realised through consistent utilisation of MNC CoC services. To reiterate, the objectives were the following:

1. To determine and describe the magnitude of the maternal and neonatal CoC utilisation in Assosa Zone, North Western Ethiopia
2. To analyse and describe the current maternal and neonatal CoC services in the study area
3. To identify factors that determine utilisation of the maternal and neonatal health CoC in the study are
4. To explore and describe barriers that hinder utilisation of the maternal and neonatal CoC in the study area
5. To develop a continuum of care model for reducing maternal and neonatal mortality in North Western Ethiopia

Based on these objectives, the magnitude of MNH CoC utilisation in Assosa Zone, North West Ethiopia, in line with the aim of the study, was determined and described in Chapter 4 under sub-heading 4.3.1.5.7 of this thesis. In line with objective 2**,** the current MNH CoC services in the study area were described and analysed in Chapter 4, sub-heading 4.3.1.5 and 4.3.1.6. In line with objective 3, factors that determine utilisation of MNH CoC in Assosa Zone were identified in Chapter 4 under sub-heading 4.3.1.7.

The barriers that hindered utilisation of MNH CoC in Assosa Zone, North West Ethiopia were discussed in Chapter 4 under sub-heading 4.3.2, in response to objective 4. The four objectives above were all addressed in Chapter 4 of the thesis.

The fifth objective, developing a CoC model to reduce maternal and neonatal mortality, has been addressed in Chapter 5, hence the researcher believes that all the study objectives have been met.

Having conducted an inquiry among all women who had given birth in the past nine months, health providers, heads of health facilities, district directors, district program officers, HEWs, kebele leaders, women's health development army leaders and religious leaders, the study generally found poor integration of ANC, SBA and PNC services in the study area. The study further identified low utilisation of MNH CoC services and that many women had discontinued the required CoC pathways.

Maternal and neonatal health CoC is an accepted fundamental approach for the reduction of maternal and neonatal deaths, but the approach becomes the main challenge in resource limited settings as identified throughout the literature review and findings of this study.

Various studies have identified determining factors of maternal health care service utilisation in sub-Saharan Africa (Okedo-Alex et al 2019; Doctor, Nkhana-Salimu & Abdulsalam-Anibilowo 2018; Oh et al 2020). Most of the factors are area specific (Emiru et al 2020; Amare et al 2019; Lankrew 2020). The limited geographic reach restricts the types of interventions available, particularly in nations with complicated sociodemographic, cultural, and economic environments and inequities. The present study identified a wide range of factors that hamper the completion of MNH CoC, which indicates a need for

broader understanding of situations that cause low coverage of MNH CoC services and factors obstructing the utilisation. Understanding the complicated and dynamic factors that determine the completion of MNH CoC and presenting the factors in an applicable model are crucial for the reduction of maternal and neonatal deaths.

5.2 KEY FINDINGS THAT CONTRIBUTED TO THE DEVELOPMENT OF THE MODEL

As stated, maternal and neonatal CoC has been recognised as a critical approach to reducing maternal and neonatal deaths; however, in the resource-constrained settings described in the preceding chapters, including the findings of this study, the approach becomes the main challenge. The proposed model is based on the study's findings, specifically the barriers that hampered the CoC of MNH. The major findings of the study are summarised next.

5.2.1 Quantitative phase

The study shows only 53.7% completed MNH CoC services from ANC through PNC pathways, with high discontinuation from first ANC attendance to fourth ANC attendance.

In each CoC, the integration of services was poor, and many women did not get lifesaving interventions. During ANC follow-ups, there were discrepancies among interventions. 93.8% of ANC respondents were tested for syphilis, 98.7% for HIV, 83.8% for hepatitis B surface antigen, and 97.6% for urine tests. However, only 52.8% of women took iron folic acid for three months or more, while the remaining 43.8% took it for less than two months (below the recommended period), and 2.7% received none at all. In terms of TT, only 17.2% of women received it five times and anticipated to be protected, 80.1% received it one to four times (below the recommended dose), and 2.7% received no iron folic acid at all.

Regarding determining factors for the utilisation of MNH CoC, there are many variables that affected women's CoC service completion in the multivariable regression of each model. After controlling for other variables, the findings revealed that occupation, partner support, number of children, knowledge of expected number of ANC, knowledge of neonatal danger signs, initiation of first ANC booking, place of ANC and PNC,

comprehensive counselling and physical examination during ANC, and mode of delivery variables were significantly associated with completion of CoC use among women.

Compared to women who did not have formal education, those who had received primary education were 2.5 times more likely to complete MNH CoC services. Employed women were 20 times more likely to complete CoC services than housewives. Women who were supported by their partner were five times more likely to complete CoC services than those who did not have the support of partners. In this study, compared to women who had one child, those women who had more than two children were less likely to complete the fourth ANC follow-up because high parity women may lack motivation to receive the recommended ANC services during their pregnancy period. The completion of MNH CoC services is highly influenced by women's knowledge of the expected number of ANC visits. Women who understood the expected number of ANC visits were nearly 13 times more likely to complete the full CoC than those who did not. In all three models, starting ANC services during the first trimester is a better predictor of completing MNH CoC services than starting ANC services after the first trimester. The study also found that women who began their ANC visits between one to four months were eight times as likely than those who began later to complete MNH CoC services.

The place for attending ANC is a strong predictor of the completion of MNH CoC services in all three models. In Model 3, for example, women who received ANC in health centres were seven times more likely to complete MNH CoC services than women who received services at health posts, private clinics, or at home. Furthermore, women who received ANC in hospitals were five times more likely to complete maternity CoC services than women who received care at health posts, private clinics, or at home. The odds of completing CoC were considerably greater among mothers who gave birth to their neonates through C-Section than among women who gave birth via assisted or spontaneous vaginal delivery.

Residence, wanted pregnancy, place of delivery and CHX supplementations are statistically determining factors for the health of neonates within 28 days after birth along the CoC pathways. The neonates of women who reside in urban areas were less likely to become ill compared to those who reside in rural areas. The present study found that

wanted pregnancy decreased the occurrence of illness in neonates by 74% in contrast to unwanted pregnancies. The present study also indicates that the odds of illness in neonates who received chlorohexidine immediately after birth were decreased by 58% compared to those who did not receive it. In this study, the place of delivery during the CoC services was significantly associated with the illness of neonates in the study area. In contrast with neonates who were born in hospitals, those neonates who were born in other centres (health centres, health posts and at home) were five times more likely to become ill within 28 days after birth.

5.2.2 Qualitative phase

The researcher found that completion of CoC services was impeded by individual barriers, cultural and community barriers and barriers in health provision. These barriers included many factors that hindered the utilisation of MNH CoC services from recognised health facilities.

Direct and indirect costs related to MNH CoC services were individual barriers that hindered the completion of CoC services. This economic barrier was worse for those women who were from low economic status, especially those who lived in rural settings, far distances from health facilities, and lacking appropriate transportation access to receive MNH CoC services. The increased transportation and medication costs and inability to pay the higher costs challenged women to discontinue the lifesaving MNH CoC services. Due to financial constraints, women avoided ANC, delivered at home, or even refused further referrals in the event of complications.

Individual barriers, primarily related to awareness gaps that contributed to late initiation of ANC booking included not knowing the last menstrual period, not understanding the significance of the MNH CoC services, and being unaware of critical life-threatening complications. On account of these factors, women discontinued the MNH CoC services. These awareness gaps are connected to the socioeconomic characteristics of women.

Access to maternal and neonatal health care services was hampered by women's various responsibilities for household care, child care, and supporting their husbands during farming or other day-to-day activities. As identified in the current study, this resulted in a

high workload for women and prevented them from scheduling early booking of ANC, which is critical for the completion of MNH CoC services.

The present study identified that low risk perception along the CoC caused women not to seek any maternal health services. Many women confirmed that they did not seek care unless they experienced complications or perceived that the complications would cause harm to their neonate or themselves. The current study confirmed that women perceived PNC as necessary only if obstetric complications occurred. This was related to awareness problems and the absence or low perceptions of risk due to prior pregnancy-related complications that prevented women from attending routine follow-ups because they assumed that their pregnancy would be like the previous normal pregnancy and normal childbirth, but they had no idea what would happen during their current pregnancy, childbirth, and PNC periods. In many cases, absence of complications among women affected the early initiation of ANC, the entry point of the continuum of care. The study also found that lack of previous complications, more pregnancies, and unwanted pregnancy were barriers to early booking of ANC services.

Cultural and community related barriers were the most influential factors that prevented women from accessing or utilising MNH CoC services. As explained by most of the study participants in the study area, the study identified that religion, community perceptions and husbands' influence were the most determining barriers for the continuity of MNH services. During delivery women preferred not to be assisted by males because of religious prohibition by Muslim followers. Religious prohibition, husbands' influence and misperceptions were barriers to PPFP utilisation during PNC periods. The tradition of concealing pregnancy during the early stages deterred women from timely initiation of ANC follow-ups. Fear of revealing the pregnancy was reported by many study participants and this practice affected the use of recommended ANC follow-ups in the study area. Revealing pregnancy was more shameful among women who had short interpregnancy periods. They concealed the pregnancy until it became observable by others. Those who had many children hid their early pregnancies due to fear of neighbours, culture and economic influences. Women believed that the foetus needed to be large to reveal the pregnancy to others because they were not sure about the continuation of the pregnancy. Often women did not attend postnatal care services due to fear of the community's traditional beliefs.

Women feared that they and their neonates would become ill because of imbalances in the air, and they believed that they should wait at home after they had given birth. Because of these beliefs, women did not attend the PNC services if they were healthy.

The current study identified complicated health provision or organisational barriers to the completion of MNH CoC services. The availability and accessibility of CoC services hampered women's use of CoC services. Almost all study participants complained that health facilities lacked necessary medical equipment, medications, supplies and laboratory investigations. These deficiencies hindered maternal and neonatal continuity of care among women. Lack of food and drink after delivery was a serious barrier for women to stay at health facilities for 24 hours after delivery and some preferred to deliver at home. Perceived quality of maternity care due to lack of medication, equipment and supplies identified by this study had an echo effect on the utilisation of MNH services across the CoC pathways.

Lack of proper counselling during ANC and delivery, and lack of scheduling PNC services that prevented the use of such services from recognised health facilities were additional determining factors identified by the current study. Lack of privacy at health facilities was a deterring factor for women's use of MNH CoC services. The study found that there was no privacy during delivery because of the presence of many practitioners. Such lack of privacy and undue exposure of women's reproductive organs had a reverberating effect that deterred mothers from attending the continuum of care. The delivery of respectful maternal and neonatal care helps to meet a woman's psychological and emotional childbirth needs. However, lack of respectful care leads to non-use of the critical maternal and neonatal CoC services, with negative outcomes. Discrimination based on socioeconomic status, and poor client and provider interaction influence the use of continuity care in the study area. Quality services rely on competent health workers and many study participants were dissatisfied during the intrapartum period and they discontinued utilising the services.

The government of Ethiopia has been providing free maternal health services along the CoC pathways. However, the facilities suffer from a lack of medication and women cannot afford purchasing medication from private clinics at high cost so that they discontinue the critical CoC services. The government has also availed ambulance services for

emergencies, but the study identified that women delivered at home, did not utilise skilled ANC care and PNC services because of lack of road access, challenging roads, long distances from health facilities and lack of transportation availability. Inaccessibility of health facilities because of a lack of transportation and high opportunity costs are persistent deterring factors for seeking maternal and neonatal health care services. The present study indicates that a lack of ambulance transportation resulted in home delivery because phones were either busy or there was no network, or drivers were busy serving other women or the ambulance was undergoing service.

5.2.3 Summary of findings (integrated findings)

In summary, the findings of this study indicate that the attendance of the first ANC, fourth ANC, SBA and PNC service coverage was high and ranged from 62.6% to 95.0% among women who had given birth in the past nine months in the study area. However, the proportion of women who discontinued their journey from one maternal care service to the next was high, with a discontinuation rate of 32.4%, 2.8% and 6.1% from first ANC to fourth ANC attendance, fourth ANC attendance to SDA and SDA to PNC services, respectively. This high discontinuation rate and poor integration of services resulted in only 53.7% of women who accessed the full range of services along the MNH CoC pathways.

The quantitative and qualitative findings support each other. Women supported by a partner were more likely to complete MNH CoC services. This was supported by the qualitative finding where a woman delivered at home due to lack of transportation cost. Partners also influenced the utilisation of family planning services during the postnatal period (Table 5.1)

Employment status significantly affected the completion of MNH CoC services. Employed women were more likely to complete MNH CoC services than housewives. However, this finding was not supported by the quantitative findings where the status of completion of MNH CoC services was similar in the housewives and employed women in qualitative findings (Table 5.1).

Women who had more children were less likely to attend all recommended ANC services from the recommended health facilities. This finding is supported by the findings of the

qualitative phase, indicating that when women's previous pregnancy outcomes were normal and healthy, they did not use MNH CoC services for their subsequent pregnancies (Table 5.1).

The number of a woman's children significantly affected the use of the recommended ANC services. The quantitative study revealed that the chance of completing the fourth ANC was lower among women who had more children than women who had only one child. However, the number of children was not statistically significant for the completion of services from ANC through PNC. This finding was supported by the qualitative finding where those women who had delivered their previous children without complications thought that there were no problems if they did not use the CoC services (Table 5.1).

This study found that there was no difference in the completion of continuity of care from ANC through the postpartum period among women who had comprehensive knowledge of maternal complications that could occur during pregnancy, childbirth and postnatal periods and women who lacked such knowledge. This finding is supported by the qualitative findings where most of the study participants interrupted the postnatal care because they believed postnatal care was only necessary if the woman experienced complications such as bleeding. Others did not use postnatal care due to a lack of understanding of the importance of postnatal services (Table 5.1).

Higher skilled services contributed the completion of MNH CoC services. Compared to women who gave birth through assisted vaginal or spontaneous delivery, women who gave birth through C-section had higher completion rates. This finding is supported by the qualitative finding where women went to hospital to get higher services without referral to get C-Section services. Women also requested referral when their labour and delivery process took longer (Table 5.1).

Table 5.1 Summary of integrative quantitative and qualitative findings for the completion of MNH CoC services in Assosa Zone, Northwest Ethiopia

Quantitative findings	Qualitative findings (verbatim quotations)	Integrative findings
Women supported by a partner were (AOR=4.94, 95% CI=1.43-17.14) more likely to complete MNH CoC services than women unsupported by a partner.	• Her husband said he was absent at home, when they called to ambulance to get ambulance services, the phone was not functional, she has no money at hand, and she delivered at home.	Convergence

Quantitative findings	Qualitative findings (verbatim quotations)	Integrative findings
	• The main barrier for our kebeles that hinder to utilise PPFP was the presence of husbands' influence	
Employed women were more likely (AOR=12.26, 95% CI=1.87-80.28) to complete MNH CoC services than housewives.	• I attended first ANC within four months of pregnancy, attended monthly follow-up till delivery, delivered to health centre and utilised FP after 45 days of delivery but I did not attended PNC because I expected that a woman can receive PNC services when she has bleeding, and her child has any health problems (IDI-2, 25-year-housewife). • I started first ANC at five months, completed all ANC services, delivered at health centre and waited at 24 hours at delivered health facility. … However, I did not go to health facilities to attend other PNC services because I felt healthy. I think someone went to the health facility when there are danger signs like bleeding (IDI-1, 32-year-old employed woman).	Divergence
Women who had several children were less likely to complete the fourth ANC services than women who had only one child. But this variable was not statistically significant for the completion of MNH CoC services.	• Those women who delivered their previous children and unfortunately, they were healthy, they thought that there were no problems if they were not use the CoC services	Convergence
There was no difference in completion of MNH CoC services among women who had knowledge of maternal danger signs and who did not have knowledge.	• I did not know the need to return for screening of me and my child['s] health. • Women did not attend PNC because they and their neonates were healthy.	Convergence
Women who did not have knowledge of neonatal danger signs or complications were less (AOR=0.21, 95%CI=0.09-0.51) likely to complete MNH CoC services than their counterparts.	• Women not conducted ANC attendances from skilled provider due to awareness problems. • I did not return to hospital because I did not know the need to return for screening of me and my child['s] health.	Convergence
Women who knew the expected number of ANC visits were more likely (AOR=13.21, 95% CI=6.29-27.72) to complete MNH CoC services than those who did not know.	• In many conditions women could think that they did not want to [attend] health facilities considering that they did not get anything there. • Women not conducted ANC attendances from skilled provider due to awareness problems	Convergence
Women who booked early 1st ANC were (AOR=8.31, 95%= 4.70-14.69) more likely to complete MNH CoC services than who booked 1st ANC later.	• I did not utilise the fourth utilisation of ANC because of delayed ANC startups. • Some women did not notify their pregnancy at early times and delayed their first ANC follow-ups till 5-6 months	Convergence
Women who attended their ANC visit at hospitals and health centres were more likely to complete MNH CoC services than those who attended at health posts or at home.	• Women did not return to receive CoC services for their next visits. • Women hate the health centre to use maternal health services.	Divergence
Women who received comprehensive	• The main reasons women [did] not	Convergence

Quantitative findings	Qualitative findings (verbatim quotations)	Integrative findings
counselling and physical examination during their ANC visits were more likely to complete MNH CoC services than their counterparts	utilise[…] the rest PNC were due to lack of proper counselling, appointment and women perceived that PNC [was] not required to attend from the recognised health facility. • They appointed to return after three days for child immunisation (said BCG and Polio) but they did not tell me about anything for other services and I did not return for PNC services. • We did not counsel to follow PNC at health centre while they were healthy.	
Compared to women who delivered through vaginal and assisted delivery, those who delivered through C-section were more likely to complete MNH CoC services.	• When their labour extended, they request us to refer them to hospital and want to deliver through C-Section to save their life. • Women themselves went to hospital rather than by referral.	Convergence

The quantitative and qualitative phases of this study further show that there was poor integration of service provision in each of the MNH CoC services. At household level, workload, lack of awareness and the presence of different perceptions related to CoC services among women about MNH CoC services from health facilities influenced utilisation of MNH CoC services. At the community level, there were cultural barriers and unavailability of transport to access MNH CoC services at health facilities. At facility levels, there were shortages of medication, laboratory investigations, equipment, shortage of ambulances for referral, disrespectful service provision by health workers, and poor infrastructure resulting in dissatisfaction of service takers, poor linkages of CoC interventions and finally discontinued MNH CoC services.

The study further revealed that the present MNH CoC services were generally influenced by multiple determining factors and barriers identified in the quantitative and qualitative phases. These can be categorised broadly under sociodemographic, household and community, reproductive health and PHC or health system related pillars, which will be used to develop a CoC model to reduce maternal and neonatal deaths at household, community, and health facility levels. The next section describes the proposed model.

5.3 A CONTINUUM OF CARE MODEL FOR REDUCING MATERNAL AND NEONATAL MORTALITY IN ASSOSA ZONE, NORTH WESTERN ETHIOPIA

5.3.1 Background and introduction of the model for reducing maternal and neonatal mortality in Assosa Zone, North Western Ethiopia

According to the WHO (2022), maternal and neonatal mortality rates are high in sub-Saharan Africa, including Ethiopia. These deaths are directly linked with low utilisation of maternal and neonatal health care services. Maternal and neonatal CoC services are critical interventions to reduce preventable maternal and neonatal deaths. However, the completion of the MNH CoC services has been low in different findings (Atnafu et al 2020; Emiru et al 2020; Haile et al 2020; Tizazu et al 2021), including in the present study. The low completion of MNH CoC service use is interlinked with different situations related to individual, community and health facility factors. Recognition, identification and understanding of the determining factors that lead to the low completion of MNH CoC services among women or women's discontinued use of the MNH CoC lifesaving interventions can improve the completion of MNH CoC service use and subsequently reduce the high maternal and neonatal mortalities in North Western Ethiopia**.**

A scientific model is a methodical, potent visual representation of postulates, evidence, and inferences that allows us to make predictions (Börner, Boyack, Milojevic & Morris 2011). In this thesis, a continuum of care model is a prerequisite for the reduction of maternal and neonatal deaths in Assosa Zone, North Western Ethiopia. Presented below are the vision, the goal of the model, the political will, the legislation, and the indicators at the heart of the proposed model**.**

5.3.1.1 The vision of the model

Improved maternal and neonatal care for the reduction of maternal and neonatal mortality in line with SDG-3 through efficient integrated CoC services in Ethiopia.

5.3.1.2 The goal of the model

The proposed model aims at enhancing the completion on MNH CoC services to improve the health outcomes for the mothers and neonates in Assosa Zone, North Western Ethiopia.

5.3.1.3 The political will

There has to be adequate political will at all levels of governance to acknowledge and support efforts to address factors responsible for high rates of maternal and neonatal deaths. Strategic consideration must be given by the federal and regional governments to allocate budget to standardise and equip health facilities and recruit competent health workers for each health facility for the provision of quality MNH CoC services. Local governments should strengthen the empowering of women through job creation and health insurance, especially for poor women. Local community leaders and health managers should strengthen the women's health development army network and use is as an entry point for MNH CoC services from skilled providers.

5.3.1.4 The legislation

The model and policies which emerge from other models and research findings should state, promote, protect and defend maternal or reproductive health rights. Instruments that could be used include, at the international level, PHC, which is the most equitable, efficient, and effective strategy to enhance the health of populations (WHO & UNICEF 2022) and the widely used Andersen health behaviour model to study the determining factors of health care utilisation in many studies (Neupane et al 2020). Other international legislative tools include the SDGs declaration, the continuum of care strategy, and the WHO quality of services guideline. The health policy of the transitional government and national reproductive strategic plan can be used at the Ethiopian level.

5.3.1.5 The indicators

These should be clearly stated in respect of:

- The budget allocation for MNH health care services for infrastructure, transportation access and medical supplies.
- Equal allocation and distribution of resources so that the per capita expenditure as well as the staff is devoted to MNH health care service delivery in the urban and rural areas.
- Trained personnel made available for attending pregnancy, childbirth and postnatal care at health facilities.

- A competency-based trained women's health development army to be available at each village to create awareness and social mobilisation for skilled MNH services.

5.3.1.6 Mobilisation of human potential

Political representation by women and job creation for women could give women a power base from which to organise and solve problems regarding women's health. The support could be sought from the national machinery of women or women affairs office of the Federal Republic of Ethiopia. Resistance to reductions in medical care coupled with demands for increased state expenditure on health care and a more equal social distribution of medical resources in securing health rights could ensure overall quality of women's health care services, thus making a difference in reducing maternal and neonatal mortality.

5.3.1.7 Integration of services

Integrated maternal and neonatal high impact intervention services within the primary health care organisation prevent maternal and neonatal deaths. To reduce maternal and neonatal deaths, all quality intervention services should be integrated at ANC, childbirth and postnatal CoC periods in all governmental facilities. The integration of services should be extended with the private sector and civil society as captured in the proposed model in Figure 5.1 below.

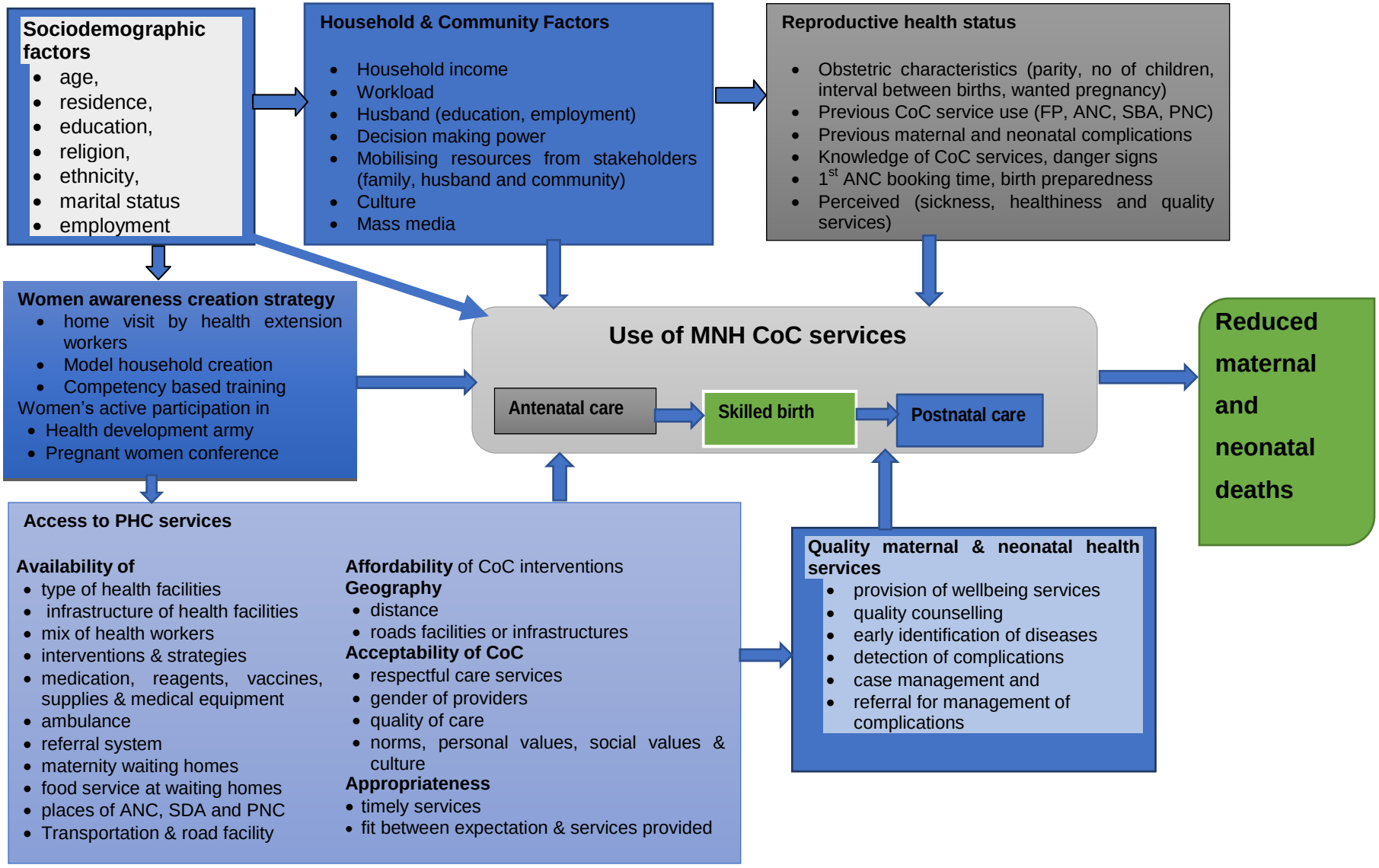

Figure 5.1 A proposed continuum of care model for reducing maternal and neonatal mortality in Assosa Zone, North Western Ethiopia

5.3.2 Description of the model constructs/ elements of the model and their use

As shown in Figure 5.1 above, the alternative model indicates that MNH CoC at the primary health care system improves the utilisation of services. The latter has the potential to reduce maternal and neonate mortality.

The model focuses mainly on the different interlinked pillars to reduce maternal and neonatal deaths, namely, socioeconomic and women factors; household and community factors; and reproductive health status of women. Each pillar is presented in the model and explained below.

5.3.2.1 Sociodemographic factors

Sociodemographic factors influence utilisation of MNH CoC services during pregnancy, childbirth and PNC after childbirth, as documented in many studies (Paul & Chouhan 2020; Chham, Radovich, Buffel, Ir & Wouters 2021). Socio-demographic factors including age, residence, education status, religion, ethnicity, and marital and employment status of women are the most significant determining factors for utilisation of MNH CoC services among women. These determining factors are the source of variations in utilisation of MNH CoC services in the present study. For example, women who live in rural areas discontinued MNH CoC services due to lack of transportation access, and employed women were more likely to complete the MNH CoC services than other occupation categories.

Sociodemographic factors are directly linked to the household and community factors. These factors also have a direct influence on the reproductive status of women. Women with no formal education were more likely to desire more children than women with higher education (Ahinkorah, Seidu, Armah-Ansah, Ameyaw, Budu & Yaya 2021). It is necessary to reduce sociodemographic factors that hamper the use of MNH CoC services, to improve enabling resources and need factors to use MNH CoC services, and to improve the access to quality CoC services with high impact interventions, which would result in completion of MNH CoC services and reduction of the preventable maternal and neonatal deaths in Ethiopia.

Therefore, policy makers, political leaders, health managers, health workers, religious leaders and community leaders should address sociodemographic vulnerabilities or

constraints to improve the completion of MNH CoC services during ANC, childbirth, and PNC periods and eventually to reduce the risk of maternal and neonatal deaths.

5.3.2.2 Household and community factors

According to many studies, household and community factors are the most influential factors for utilisation of maternal and neonatal services (Alibhai, Ziegler, Meddings, Batung & Lugnaah 2022; Chaka 2022; Zelka et al 2022). In this study, household income, husband's education, husband's employment, decision making ability, workload, culture and support from husband, family and community influenced the completion of MNH CoC services. These factors are directly linked to the socioeconomic status of women. Women with low socio-economic status had lower ability to complete MNH CoC services from the recognised health facilities. The present study found that socio-economic barriers were worse for those women with low economic status and especially those who lived in rural settings, far distant from health facilities and lacking appropriate transportation access to receive MNH CoC services. In this study, women with partner support were more likely to complete MNH CoC services than those women who did not have the support of a partner in the utilisation of the care.

Early marriage and lack of family planning are deeply rooted in cultural values, religion and traditions and in this study had a significant influence on maternal health services. The influence of community cultures prevented young women from seeking maternal health care (Omer, Zakar, Zakar & Fischer 2021). In most communities, women are caretakers of the family, share the highest workload and are less privileged in decision making. All these community and household factors were identified in this study as barriers for accessing the MNH CoC services.

Every strategy and health policy focuses on addressing the household and community barriers and creating the enabling environment for women to seek MNH CoC services across the nations in the study area.

5.3.2.3 Factors related to reproductive health status of women

Women have different needs across their reproductive health status. These indicate how women generally view their own health status and previous illness experience against their needs of MNH CoC services. Their views contributed to the utilisation of lifesaving MNH

CoC services along the ANC, childbirth, and PNC pathways or prevented the discontinuance of such care. Having two or more children rather than only one child was identified as a factor that negatively influenced the completion of MNH CoC services in the present study. This is linked to those women who had more experience through the pregnancy, childbirth and PNC periods and these experiences gave them confidence to ignore the use of MNH CoC services. The current study confirmed that women and their neonates who were healthy and also in their previous pregnancy and childbirth did not utilise MNH CoC services. The current study has further shown that previous negative experiences contributed to poor utilisation of MNH services because women felt that they had not received proper care during their previous visit.

Short birth intervals barred women from early scheduling of first ANC services, and this led women to not complete the recommended ANC visits along the CoC. On the other hand, wanted pregnancy resulted in early ANC scheduling within four months and contributed to receiving services from skilled providers to improve the health of themselves and their children.

The reproductive health status also includes knowledge of maternal and neonatal complications during MNH CoC services as a sub-construct of the model. Women who had knowledge of complications tried to use the MNH CoC services for early detection and management of complications. However, in this study women who perceived low quality of services at health facilities barred themselves from MNH CoC services.

Therefore, the reproductive health status is an important construct of the model for every actor to act strategically to improve the maternal and neonatal health care along the MNH CoC pathways.

5.3.2.4 Access to maternal and neonatal health continuum of care services

MNH CoC services are highly influenced by primary health care access and quality of care. Ensuring access of MNH CoC services at all health facilities by government and stakeholders and provision of high quality MNH CoC services during ANC, childbirth and the immediate post-natal period are the most critical interventions for reducing maternal and neonatal deaths. As stated by the WHO, every pregnant woman should receive high

quality care throughout the pregnancy, childbirth and post-natal periods of CoC pathways (WHO 2016c).

Access to MNH CoC service is the leading contributing factor for the use of such services. Poor accesses to maternal and neonatal services were the highest contributing factors for maternal and neonatal death in resource limited settings (Mweemba et al 2021). Access constructs in this model include availability, acceptability, affordability, geography and timely components. These constructs were the foremost contributing factors for low completion of MNH CoC services.

The present study identified that rural health facilities were not able to provide quality of all recommended services during ANC, childbirth and PNC services due to lack of or shortage of medication, essential ANC laboratory investigations, medical equipment and supplies. The facilities also lacked infrastructure for providing proper services, including electric supply, water, service provision rooms, and maternal waiting rooms. Even some kebeles (lowest structure of administration unit in Ethiopia) did not have health centres and women travelled long distances to receive MNH CoC services. In addition to these factors, women even tried to access MNH CoC services at facilities further away, but they were hampered by lack of or poor roads infrastructure and lack of transport access. Following these, some women tried to access distant facilities for MNH CoC services but there were other barriers – there were many women in the queue, and there was a shortage of medication and food access. Finally, women discontinued the MNH CoC services for their next visit. In the Ethiopian context, all MNH services are free, and the Ethiopian government has introduced ambulance services for the management of emergency and delivery services. However, the present study identified that many women complained that they could not access the ambulance services because of shortage of fuel, poor cell phone connectivity and only one ambulance per facility. In addition to these barriers, women were not able to afford non-service-related costs, especially among poor rural women.

Availability of health workers and their qualifications and experience can affect the utilisation of MNH CoC services. In the current situation, competent health workers with higher qualifications and experience are concentrated at district centres and women perceived that the services provided at rural centres were substandard.

Acceptability of service provision influenced the MNH CoC services. Service takers' perception of needs and their desire for care based on their culture, social values, autonomy and norms must be acknowledged. To provide acceptable quality of MNH CoC services, understanding of the context and the culture is required by service providers.

Initially, the CoC approach aimed at reaching mothers and neonates at the critical time and places (facilities) to save their lives. The place dimension connects the different levels of CoC places (households, communities and health facilities) while the time component links care provision across the critical times during ANC, childbirth and the postpartum period. The timely care at critical points of the CoC is linked to the quality of services in the identification, investigation and management of complications. Early identification of pregnancy at community level by community structures facilitates referral by community HEWs, provision of well-being services at health facilities, detection of complications, management of complications, and referral for further management of complications are proved interventions in Ethiopia to save the lives of women and neonates.

Understanding and linking the access, availability, affordability, acceptability and timely services and identifying the barriers that hinder MNH CoC services are an important step for targeting interventions aimed at promoting completion of MNH CoC services along the pathways that contribute to reduction of maternal and neonatal deaths.

5.3.2.5 Women's awareness raising strategies for the continuum of care services

Many efforts have been implemented to improve access to basic, obstetric and newborn care. However, there were inadequate ANC skilled birth and PNC attendants, and this led to little progress in prevention of neonatal mortality of 29 per 1,000 lb in 2016 and 30 per 1,000 lb in 2019 (EPHI & ICF 2019). Ethiopia has been implementing a community health extension program since 2003 to achieve universal health coverage and the program has made significant improvements in maternal and child health through high demand creation for seeking care at health facilities (Assefa, Gelaw, Hill, Taye & Van Damme 2019). At each kebele, HEWs were deployed to provide community services with progressive changes in improving maternal and neonatal health (Assefa et al 2018), but the present study indicates that the completion of MNH CoC services was low. One of the barriers to continued MNH CoC was a lack of awareness among women. Religious, cultural and husbands' influences in the utilisation of MNH CoC were linked to awareness gaps. Lack of

previous pregnancy and childbirth complications, and the fact that women only considered the use of ANC and PNC services when they were ill were also linked to awareness gaps. Late scheduling of first ANC attendance could also be because of awareness problems. Awareness raising interventions using the community structures for women are critical to improve maternal and neonatal CoC services utilisation.

In 2010, Ethiopia introduced the Women's Development Army (WDA), which is linked to health extension programs and mainly focuses on household behaviour changes. The WDA has its own arrangement of one to five and one to thirty within the same neighbourhood. A woman who knows and has practised the packages of the health extension program becomes a leader of one to five team members or one to thirty and serves them to practise the packages of the health extension program (Damtew, Karim, Chekagn, Fesseha Zemichael et al 2018). Women's participation in this strategy of awareness creation activities facilitates the use of MNH CoC as such activities empower women and enable them to decide their reproductive health needs. It is generally assumed that women's empowerment capacitates women to deal with and reduce socio-economic, cultural and religious barriers (Kinati, Temple, Baker & Najjar 2022). For better awareness and practices, women are required to get competency-based training which also empowers women to access the CoC services.

5.3.2.6 Active participation of women

An Ethiopian study has indicated that women who actively participated in the PWC achieved higher attendance of institutional delivery than those who did not participate (Asresie & Dagnew 2019). Participation in the WDA creates an enabling environment for women to attend PNC services (Manote & Gebremedhin 2020). Active participation in the PWC and the WDA creates valuable opportunities for women to share ideas and experiences. These platforms impower women to decide and enable them to access MNH CoC services from the recognised health facilities. The health system should be fully implemented at all levels to increase the MNH CoC services.

5.3.2.7 Provision of quality maternal and neonatal health continuity of care services

Provision of MNH CoC services is one of the vital lifesaving strategies to reduce maternal and neonatal deaths. During the CoC pathways, promotive provisions including iron folic

acid and deworming supplementation and TT vaccination are important to prevent anaemia, tetanus toxoid disease and worms respectively. Early identification of communicable diseases (HIV, syphilis, hepatitis virus) are imperative to prevent maternal to neonatal transmissions. Early identification of pregnancy and child-birth related complications assist early management and referral to higher levels to effectively decrease the morbidities and mortalities. Along the continuum of care, proper counselling related to use of recommended ANC follow-ups is the basis for the completion of MNH CoC services and the present study indicates that women who receive comprehensive counselling are more likely to complete the fourth ANC services.

During childbirth CoC, effective management of the labour and delivery process, applying essential newborn services, compassionate respectful care, maintaining privacy and dignity of women, and avoiding discrimination result in positive maternal and neonatal health outcomes along the CoC pathways.

To improve maternal and neonatal health, effective MNH CoC service coverage should be achieved at each level. To obtain effective coverage of MNH CoC services, the following are essential: assessing the extent to which health care delivery adds potential gains to the population by integrating concepts of CoC services use at critical points, linking the CoC services with other population dynamics, and enhancing the need factors and provisions of quality services. Quality of service can be obtained when the availability of medication, equipment, and medical supplies is assured at each health facility, followed by the deployment of competent health workers at each level.

5.4 CONCLUSION

The study was conducted to develop a CoC model for reducing maternal and neonatal deaths based on the current quantitative and qualitative findings and reviews of literature. This study confirms that there are many factors that affect the completion of MNH CoC services during pregnancy, childbirth and postnatal periods in Assosa Zone, North Western Ethiopia. These factors have been categorised under sociodemographic, household and community, reproductive health status, and health service-related factors or barriers. The sociodemographic factors are interlinked with the household factors and the reproductive health status of women. The study confirms that uneducated women desired to have more children, but women who had more children had higher workload at household level and

they were not able to start early scheduling of ANC, which is the base for completion of MNH CoC services. The study also identified that those women who had more children were less likely to attend antenatal care from skilled providers. This is linked to lower perception of complications. Furthermore, the study shows that less understanding of complications among women resulted in discontinuing the MNH CoC services. Women often perceived themselves to be healthily in their pregnancy, and skilled at birth and postnatal periods due to lack of awareness. Many women did not use the postnatal services because of gaps in their knowledge and awareness.

The study has further identified that health services factors were the predominant factors for the discontinuation of MNH CoC services. Shortage of medication supplies and essential laboratory investigations resulted in the providers prescribing out to private clinics or an inability to provide lifesaving interventions when the women arrived at health facilities. Following these, the present study has identified that women were unable to afford to purchase medication even if they resisted referral in severe complications and this resulted in discontinuation of the continuum of care and adverse health outcomes. Other non-service-related costs such as lack of transportation access, inability to pay for transportation and lack of food access, especially for rural women and settings distant from health facilities, resulted in women delivering at home. All the identified barriers or factors required integrated responses or interventions at household, community and facility levels.

Therefore, the CoC care model was developed as an intervention to reduce maternal and neonatal mortalities. This model will hopefully make a significant contribution in the improvement of CoC resulting in the reduction of maternal and neonatal deaths in the study area, thus contributing to meeting the envisaged Ethiopian SDG 3.

CHAPTER 6:
CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

Conclusions and recommendations are crucial components of the research process when the researcher wraps up the problem statement, summarises major study results, and offers the main recommendations from the findings (George 2022). Accordingly, this chapter presents the conclusions, strengths and limitations of the study and proposes key recommendations.

The aim of this study was to investigate the determinants of maternal and neonatal service utilisation and develop a continuum of care model for reducing maternal and neonatal mortality in North Western Ethiopia. This main objective was guided by five specific research objectives presented in section 1.5 of Chapter 1. These specific objectives were accomplished through a mixed method study design as presented in depth in Chapters 4 and 5 of this study.

6.2 RESEARCH DESIGN AND METHODS

The research design is the use of evidence-based procedures, protocols and guidelines that provide the tools and framework for conducting a research study (Majid 2018). A research design is also the process of building a structure or plan for the research project (Leavy 2022). The present study employed a convergent mixed method study design (both quantitative and qualitative methods) to establish a comprehensive picture of the study. The quantitative design was used to describe the current status and determine the magnitude of maternal and neonatal health CoC service utilisation and the factors that affect the completion of MNH CoC services. The qualitative design was used to identify and describe the barriers that hinder maternal and neonatal health CoC services utilisation in the study area.

The sample size for the quantitative data was calculated using a single proportion population formula and the sample size for the qualitative data was determined when saturation occurred during data collection. The quantitative sample size for this study was proportionally allocated to all health facilities found in Bambasi, Ura and Abrehamo

districts. Before collecting the data, the sampling frame was selected, simple random sampling was used to select the first women and every two women were selected after they attended measles vaccination, family planning and under-five clinic services at eight facilities in the study area and then data were collected from women who had given birth in the past nine months prior to the study. The qualitative data were collected from women who had given birth in the past nine months prior to the study, HDA leaders, kebele leaders, religious leaders, HEWs, midwives, health facility MCH heads, health facility heads, MCH officers and MCH directors who were selected purposely from the three districts.

The quantitative data were collected using an interviewer administered questionnaire and an individual in-depth interview was employed to collect the qualitative data. The tools were prepared by review of relevant literature and consultation of experts. The tools were piloted and modified before the actual data collection to ensure the reliability, validity and trustworthiness of the findings. Descriptive statistics and a multivariable logistic regression model were used to analyse quantitative data and Colaizzi's seven steps of data analysis were employed to analyse qualitative data.

6.3 SUMMARY OF THE FINDINGS

The present study showed that the completion of MNH CoC service utilisation among women was low and many women discontinued lifesaving maternal and neonatal health interventions along the CoC pathways. The study concluded that the completion of MNH CoC services in the study area declined from the first ANC to PNC services and many women did not benefit from lifesaving maternal and neonatal critical high impact interventions.

The occupation of women, partner support, women's knowledge on neonatal danger signs, their knowledge of the expected number of ANC visits, early ANC booking, the place for undertaking ANC and PNC services, receiving comprehensive counselling and physical examination during ANC attendance and mode of delivery were found to be significantly associated with completion of women's MNH CoC use in all three models. Other factors such as the residence, planned pregnancy, place of delivery, and chlorohexidine (CHX) supplementation for the prevention of cord infection during delivery were statistically

determined factors for the health of neonates within 28 days after birth along the CoC pathways.

The study concluded that completion of MNH CoC services was affected by individual, cultural and health provision related barriers. Under individual barriers, the financial circumstances of women served as a deterrent for those women who were of low economic status, especially those who lived in rural settings. The hard-to-reach areas and distances far from health facilities as well as lack of appropriate transport negatively shaped access to MNH CoC services. The high transportation and medication costs and inability to pay the increased costs all lead to discontinuation from the lifesaving MNH CoC services by women. The study further found that the following added to non-completion of MNC CoC: perceived low risk of complications; absence of previous complications; increased number of pregnancies, including poor awareness on MNH CoC services. The household workload further served as a barrier to early scheduling of ANC services which is the critical point for the completion of MHN CoC services.

The study found that cultural norms, traditional beliefs and community related barriers were holding women back from accessing MNH CoC services. The religion, community perceptions, husbands' influence and concealing pregnancy as a secret in the early stages were identified as deterrents of timely initiation and early attendance of ANC. Women who practised the cultural customs were also not likely to attend postnatal care services.

Health provision and completion of MNH CoC were also affected by organisational factors such as lack of required medical equipment, medication, supplies and laboratory investigations which hindered maternal and neonatal continuity of care among women. Lack of food and drink after delivery was a serious barrier for women to stay for 24 hours at health facilities after delivery and some preferred to deliver at home. Perceived quality of maternity care due to lack of medication, equipment and supplies have an echo effect on the utilisation of MNH services across the CoC pathway identified by this study.

The study indicated that women who were referred from health centres to hospital did not receive timely services due to poor linkage of the referral system. If they were not treated by an experienced health provider initially, they often decided to find another private health facility. This often resulted in complications for women themselves and their neonates.

Lack of proper counselling during ANC, lack of privacy during delivery, lack of respectful care, discrimination, and shortage of competent health workers resulted in non-use of the critical MNH CoC services with negative outcomes. The study concluded that women did not utilise skilled ANC, childbirth and PNC services due to lack of road access, bad roads, long distances from health facilities and lack of transportation (ambulance) availability.

6.4 RECOMMENDATIONS FOR COMPLETION OF MATERNAL AND NEONATAL CONTINUUM OF CARE SERVICES

6.4.1 Recommendation for policy makers and government officials

Factors affecting completion of MNH CoC services operate at various levels. Identifying all sources of a low rate of completion of MNH CoC services has a strategic relevance for the reduction of preventable maternal and neonatal deaths. This can provide very valuable insightful information for policy and programs to design and implement MNH CoC services utilisation at various levels.

In the light of the above, the findings from this study call for construction of appropriate roads that are suitable for the rural areas to access health facilities on time as the situation demands. Further, an improved road system would allow women to travel easily to health facilities to seek MNH CoC services.

The study findings further call for the construction of health facilities based on standard designs to provide adequate rooms for service provision. Existing rural health facilities should have adequate infrastructure such as electricity and water supply and medical equipment to provide standard care comparable to urban maternal and neonatal health CoC services.

The design of appropriate income generating interventions for poor and rural women is required so that they do not suffer from increased transportation and medication costs to seek MNH CoC services from far-flung areas. In addition, to address the high incidence of maternal and newborn fatalities, a health insurance system should be implemented.

6.4.2 Recommendation to health facilities

The present study identified that rural health facilities particularly were not able to provide quality of all recommended services along the CoC pathways due to shortage of

medication, essential ANC laboratory investigations, medical equipment and supplies. The health facilities should address these gaps to provide quality MNH CoC services.

The current study further showed that there were delays in services, prejudice, and a lack of courteous treatment, particularly following referral at the hospital level. The hospital should assign competent health providers to care for women immediately after referral without any discrimination.

The study reflected that women discontinued the MNH CoC services because the facilities lacked infrastructure, including electricity and water supply, service provision rooms, and maternal waiting rooms to provide proper services. The health facilities should have appropriate infrastructure that would attract women to continue receiving MNH CoC services from such facilities.

The Ethiopian government has provided ambulances for the management of emergency and delivery services. However, many women, especially rural residents, complained that they could not receive ambulance services due to damage and delays in repairing them, shortage of fuel, and poor cell phone connectivity. Given these obstacles, many women discontinued utilising lifesaving MNH CoC services. The health facilities should improve the accountability of the ambulance administration.

Health facilities should prioritise ambulance services for skilled delivery provision at health care facilities and design outreach services for basic essential ANC laboratory investigations, including ultrasound screening for women in remote areas.

6.4.3 Recommendation to health managers and health workers

The present study confirmed that higher qualified, experienced and competent health workers were concentrated at district centres and rural women perceived that the services provided in rural areas were substandard, which resulted in discontinuation of MNH CoC services. The health managers should balance the distribution of competent health workers for rural health facilities.

Acceptability of service provision influenced the utilisation of MNH CoC services. Service takers' perception of needs and desire for care are based on their culture, social values,

autonomy and norms. To provide acceptable quality MNH CoC services, each health provider should understand the context and the culture of service recipients.

The present study also highlighted inadequate CoC services of a satisfactory standard because of poor privacy and confidentiality during service provision as well as lack of compassionate respectful care along the CoC pathways. Such factors hindered completion of the MNH CoC services by women. In view of the aforementioned factors, this study recommends that every healthcare professional maintain patient confidentiality and show sympathy and respect for each woman's privacy when providing CoC services.

The present study indicated that women who received comprehensive counselling were more likely to complete the fourth ANC service. Along the continuum of care, proper counselling related to the use of recommended ANC follow-ups is the basis for the completion of MNH CoC services. So, service providers should provide comprehensive counselling and attractive physical examination for all women during their ANC services to motivate women to receive the full range of MNH CoC services.

Health managers should provide in-service training for health workers, and provision of medical equipment for health facilities. Furthermore, regular monitoring of MNH services will improve the health facilities' provision of MNH CoC services.

6.4.4 Recommendation for Kebele leaders, Health Development Army leaders, community leaders, religious leaders and health extension workers

The fact that absence of complications during previous pregnancy and childbirth and perceived good health often deterred women from using ANC and PNC services, only considering using such services when they were sick, can be linked to an awareness gap or lack of information. Late scheduling of first ANC attendance could also be due to a lack of awareness. This study recommends that HDA leaders and HEWs should conduct regular awareness raising interventions using different approaches (home visits, health education and arranged meetings) for women to improve maternal and neonatal CoC services utilisation.

Deployed HEWs at each kebele and the women's HDA should motivate each woman to participate in the existing pregnant women's conference and HDA meetings and provide

awareness creation to improve women's knowledge of maternal and neonatal danger signs, time of first ANC booking, the expected number of ANC visits during pregnancy, and the advantage of skilled delivery and PNC services after delivery.

The study also identified that cultural and religious influences and perceptions, fear of announcing early pregnancy, fear of using PNC services, and husbands' influences were the major barriers that hindered the completion of MNH CoC services. Community, kebele and religious leaders should provide awareness creation activities using different meetings such as religious ceremonies and any community gatherings in collaboration with the HDA, HEWs and health workers.

6.4.5 Recommendation for women

Failure to complete MNH CoC services was often related to women's awareness gaps or lack of knowledge. Each woman should actively participate in the existing pregnant women's conferences and women's development army network system for knowledge and awareness of the advantages of skilled attendance of ANC, childbirth and PNC services from other women in their network, health development leaders and HEWs. Women should gain information regarding the time of their first ANC booking, respective ANC visits during pregnancy, skilled delivery preparation, and maternal and neonatal danger signs that can occur during pregnancy, childbirth and the postpartum period. They should also attend all required visits during ANC and receive childbirth and PNC attendance.

6.4.6 Recommendation for partners (husbands) and family support

The present study identified that more women supported by their partner completed MNH CoC services than non-supported women. So, for the completion of MNH CoC services, partners and families should support women through reducing their workload during pregnancy and child bearing periods, provide financial support for transportation and medication, access means of transportation, and motivate woman to receive all recommended MNH CoC services throughout their pregnancy, delivery and postnatal periods. To gain such partner support, HDA leaders and HEWs should facilitate discussions between the women and their husbands and monitor such support during pregnancy, childbirth and postnatal periods.

6.5 STRENGTH OF THE STUDY

6.5.1 Strength of the study for the development of the continuum of care model to reduce maternal and neonatal deaths

The study proposes a model for a continuum of care to reduce maternal and neonatal deaths in North Western Ethiopia. This model is proposed based on the findings of the study and the review of relevant literature. The model could assist health workers and health managers to improve the completion of MNH CoC services in the region through implementing the integrative approach. This should include providing medical equipment and medication for health facilities, providing acceptable and respectful services, improving access to quality services, providing awareness creation for all women on the importance of the first ANC booking, recommended ANC visits, skilled delivery and postnatal visits by reducing barriers that hinder the use of MNH CoC services at the household, community and health facility levels.

6.5.2 Strength of the study for policy inputs to improve completion of the maternal and neonatal continuum of care

The study provides clear insight related to the completion MNH CoC services, and the determining factors and barriers that hinder the completion of continuity of care. The existing policies and strategies focused on the individual services of ANC, skilled delivery and PNC services and the system monitored the coverage of each service rather than the continuity of care. The MNH CoC is an advantageous service provided to reduce preventable maternal and neonatal deaths. Therefore, the findings of the study and the proposed model will assist policy makers in the design of appropriate interventions that address the completion of MNH CoC services.

6.5.3 Strength of the study in relation to service improvement

The present study has shown that the utilisation of first ANC attendance, fourth ANC attendance, SBA and PNC attendance were 95.0%, 62.6%, 94.5% and 87.9%, respectively. However, the completion of MNH CoC services was only 53.7%. The study also indicates that the services provided under each attendance had different limitations and quality issues. These indicated that the individual attendance utilisation rate did not guarantee that each women received the lifesaving interventions along the continuum of

care pathways. So, this study can help health managers to track the completion of MNH CoC services and reduce the barriers that hinder the completion to improve the wellbeing of maternal and neonatal health.

6.6 LIMITATION OF THE STUDY

The present study did not include women who died from complications related to pregnancy, delivery and post-natal difficulties. Further, women whose neonates had passed on or who had stillbirth delivery and abortions in their recent pregnancy were not included in the study. Based on these limitations, the present study did not show the relationship between the utilisation of MNH CoC services and its outcomes. Since the study was cross sectional in nature, it does not show the temporal relationship between the completion of MNH CoC and factors determining the completion of MNH CoC services.

6.7 RECOMMENDATION FOR FURTHER RESEARCH

The present study recommends further research using a prospective cohort study between the utilisation MNH CoC services and the respective outcomes. The study also recommends including all women who gave birth and have alive neonates, stillbirths, neonatal deaths and maternal deaths. The present study further recommends testing the effectiveness of the developed MNH CoC model to reduce maternal and neonatal deaths in similar circumstances.

6.8 OVERALL CONCLUSION

The study was conducted to develop a CoC model for reducing maternal and neonatal mortality in Assosa Zone, North Western Ethiopia, based on the mixed method study findings and review of germane literature. The focus of the study was to determine the magnitude of MNH CoC services utilisation, the factors and barriers that affect the completion of MNH CoC services utilisation among women, and to recommend solutions to improve the utilisation of MNH CoC services from pregnancy, childbirth through the postpartum periods. The main belief of this thesis is that any high impact interventions aiming at improving maternal and neonatal outcomes must adopt a continuity of care approach during pregnancy, childbirth and the postpartum period for effectively reducing preventable maternal and neonatal mortalities.

The study found that the completion of MNH CoC services was low among women who had given birth in the last nine months prior to the present study and many women did not receive lifesaving intervention along the continuum of care pathways. The completion of MNH CoC services was affected by many quantitative variables such as occupation, partner support, number of children, women's knowledge of the expected number of ANC visits, women's knowledge of neonatal danger signs, early ANC booking, comprehensive counselling and physical examination during ANC, places of skilled delivery attendance and mode of delivery. The completion of MNH services was also hampered by individual, community and health provision related barriers identified by qualitative findings.

The economic situation of women represents a critical barrier that affects their use of MNH CoC services from the skilled provider. This implies that women who are of low economic status, especially those living in rural settings and far distant from the health facilities, did not use MNH CoC services due to transportation costs. The high medication costs and inability to pay the increased non-service-related costs challenged women to discontinue from the lifesaving MNH CoC services even when they reached health facilities. Due to economic burden women did not seek ANC, delivered at home, or even resisted further referrals in cases of complications. A 40-year-old merchant woman expressed the challenge as follows:

> *"I did not want to tell you the cost I lost, huge amount of money. I got these services with high cost. I did not know what happened if this was occurred for the poor (IDI-44)".*

The extent and the challenge of the economic burden for increased transportation cost and lack of food services among poor women resulted in resistance to referral in severe conditions, as expressed by a 28-year-old midwife as follows:

> *"Most women suffered due to lack of transportation, close for the neonate and food services before and after delivery. If the cases need referral, and we consulted to refer them to higher facilities, they resisted the referral and they said they did not have any thing (transportation, [clothes] for neonate and money for food) and they preferred to get services in this facility. For future, I fear that women decline to utilise the CoC services due to the economic burden (IDI-40)".*

The study showed that the main reason for discontinuation of MNH CoC services was the related barriers in primary health care provision such as lack of medication, essential ANC laboratory investigation, lack of basic equipment and infrastructure (water and electricity supplies), especially in rural and semi urban settings. These limitations in primary health care resulted in women not getting lifesaving interventions during critical times along the MNH CoC pathways. Poor quality of services in the continuum of pathways led to dissatisfaction regarding skilled services, discontinuation and ultimately maternal and neonatal mortalities. This study further indicates that women complained about the absence of respectful and quality care due to a lack of competent skilled service providers. Furthermore, the study reveals the presence of a weak referral system, discrimination, and lack of timely services after referral so that women resisted referral even in severe complications. A health development leader expressed her feelings related to delayed services and the outcome as follows:

> *"The woman went to hospital on Friday and the health workers appointed her on Monday reasoning time has gone and lack of bed. She then went to private clinic. After that she went back to hospital and due to these delayed services, she lost her neonate. The services provision by health workers not good but "Yet Yideresal New Enji" said where we are going (IDI-6)."*

The study further demonstrates that the personal beliefs and community factors caused women to discontinue or not use at all the MNH CoC services during ANC, childbirth and postnatal periods. The most significant barriers to accessing MNH CoC services were women who perceived themselves as healthy during their continuum pathways, had no previous complications during their previous pregnancy to postpartum periods, concealed their early pregnancy for cultural reasons, feared travelling to health facilities after childbirth, and experienced religious disapproval of receiving PPFP. In this study, 2.1% women were pregnant within nine months of their previous childbirth, which is indicative of risks for their and their neonates' health outcome.

Thus, the thesis argues for a CoC model to reduce maternal and neonatal deaths to address individual, community and facility related barriers that hinder or affect the utilisation of MNH CoC services. Sociodemographic factors, household and community factors, reproductive status related factors and primary health service related factors were

the main constructs of the model. Therefore, health managers of the region, the zone, the districts and the health facilities should improve the completion of MNH CoC services by reducing the barriers that hinder the completion of MNH CoC services at the individual, community and health facility levels. The study findings and the proposed model will assist policy makers and implementers to give special attention to the continuity of MNH services at grassroots level, especially the rural community, by constructing roads, designing income generating interventions, and implementing a health insurance scheme for ending preventable maternal and neonatal deaths. Furthermore, this thesis should assist the government of Ethiopia to ensure primary health care is responsive the need to provide quality MNH CoC services. This study further assists the government to integrate primary health care services and community services related maternal and neonatal health awareness creation activities to reduce community and individual barriers or strengthen factors that enhance continuum of care services. The proposed model will also provide a reference for similar studies in the future.

Copies of this thesis will be made available to the MoH, Regional Health Bureau, Assosa Zonal Health department, district woreda health offices and health facilities to share findings and facilitate the implementation of the recommendations.

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ANNEXURES

ANNEXURE A: ETHICAL CLEARANCE CERTIFICATE FROM THE DEPARTMENT OF HEALTH STUDIES, UNISA

UNISA university of south africa

COLLEGE OF HUMAN SCIENCES RESEARCH ETHICS REVIEW COMMITTEE

28 September 2021

Dear Mr. Solomon Abtew Adete

Decision:
Ethics Approval from 28 September 2021to 28 September 2026

NHREC Registration # :
Rec-240816-052
CREC Reference # :
13112112_CREC_CHS_2021

Researcher(s): **Name: Mr. Solomon Abtew Adete**
Contact details: 13112112@mylife.unisa.ac.za
Supervisor(s): **Name: Prof Rose Mmusi-Phetoe**
Contact details: emphetrm@unisa.ac.za

Title: A model for continuum of care to reducing maternal and neonatal deaths, North Western Ethiopia.

Purpose: PhD

Thank you for the application for research ethics clearance by the Unisa College of Human Science Ethics Committee. Ethics approval is granted for five years.

The ***low risk application*** *was reviewed by* College of Human Sciences Research Ethics Committee, in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.

The proposed research may now commence with the provisions 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 should be communicated in writing to the College Ethics Review Committee.
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the

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confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.

5. 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. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data require additional ethics clearance.
7. No fieldwork activities may continue after the expiry date **(28 September 2026).** Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

Note:

*The reference number **13112112_CREC_CHS_2021** should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.*

Yours sincerely,

Signature:

Prof. KB Khan
CHS Research Ethics Committee Chairperson
Email: khankb@unisa.ac.za
Tel: (012) 429 8210

Signature: PP

Prof K. Masemola
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ANNEXURE B: SUPPORT LETTER FROM UNISA REGIONAL OFFICE TO BENISHANGUL GUMUZ REGIONAL HEALTH BUREAU

UNISA university of south africa

November 17, 2021

UNISA-ET/KA/ST/29/17-11-2021

Benishangul Gumuz Regional Health Bureau

Assosa

Dears Madam/Sir,

The University of South Africa (UNISA) Ethiopia Regional Learning Centre extends warm greetings. By this letter, we want to certify that Mr. Solomon Abtew Adete (student number 13112112) is a PhD student in the Department of Health Studies at the UNISA. Currently, he is going out for data collection on his doctoral research entitled "***A model for continuum of care to reducing maternal and neonatal deaths, North Western 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 him.

Sincerely,

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TEL+251912191483

Dr. Tsige GebreMeskel Aberra

Director

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ANNEXURE C: BENISHANGUL GUMUZ REGIONAL HEALTH BUREAU ETHICAL CLEARANCE LETTER WRITTEN FOR DISTRICTS

የቤኒሻንጉል ጉሙዝ ክልላዊ መንግስት ጤና ጥበቃ ቢሮ
Benishangul Gumuz Regional State Health Bureau

ቁጥር(Ref.) [illegible]
ቀን (Date) 17/03/2014

ለአሶሳ ወረዳ ጤና ጽ/ቤት
ለባንባሲ ወረዳ ጤና ጽ/ቤት
ባሉበት

ጉዳዩ፡- ትብብር ስለመጠየቅ ይሆናል

በጉዳዩ ለመግለጽ እንደተሞከረዉ ቀደም ሲል አቶ ሰለሞን አብተዉ አደሬ በUniversity of South Africa 3ኛ ዲግሪያቸዉን ሲከታተሉ ቆይተዉ ጥናት የሚሰሩበት ወቅት የደረሰ በመሆኑ ጥናቱን የሚሰሩበት አከባቢ በመጥቀስ ትብብር እንዲደረግላቸዉ በቀን 17/11/1021 እ.ኤ.አ በደ/ቁ UNISA-ET/KA/ST/29/17-11-2021 የክልሉን ጤና ቢሮ ጠይቋቸዋል፡፡

በዚሁ መሰረት የ3ኛ ዲግሪያቸዉ መመረቂያ ፅሁፍ "A model for continuum of care to reducing maternal and neonatal deaths, North Western Ethiopia" በሚል ዙሪያ በሚያደርጉት ጥናት ላይ ትብብር እንዲደረግላቸሁ ሰንል እናሳዉቃለን፡፡

ከሰላምታ ጋር

Chemirew Ejigu Abay
PHEM Directorate Director

ግልባጭ
ለህ/ጤ/አ/ቁ/ ዳይሬክቶሬት
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057-775-0171 /0882/0914 | 057-775-00 62 | 61 Assosa - Ethiopia
In reply please refer to our Ref. No. | Surveillance Data for Action!

ANNEXURE D: ETHICAL CLEARANCE SUPPORT LETTER WRITTEN FROM DISTRICTS TO HEALTH FACILITIES

ቁጥር ጤጽ/ም 42-14

ቀን 27-3-14

ለባም/ከ/ጤ/ጣቢያ

ለመ/46/ጤ/ጣቢያ

ለጃማጃ ጤ/ጣቢያ

<u>ባምበስ</u>

Wereda Health Office

<u>ጉዳይ፤ ትብብር ድጋፍን ይመለከታል ፡</u>

ከለይ በርዕሱ ለመጥቀስ እነድተሞከረዉ አቶ ሰሎሞን አብተዉ በዩኒቨርስቲ ኦፍ አፍሪካ 3ኛ ድግሪያቸዉን እየተከታተሉ ይገኛሉ። በመሆኑም የመመረቅያ ጽሁፍ model for continum care to reducing maternal & neonatal deaths in north western Ethiopia በምል ዙርያ ጥናት እንደምስሩ በቀን 17/03/2014 ዓም ድጋፍ ተጽፎላቸዋል። በዚህ መሰረት የሚመለከተዉ ጤና ጣቢያዎች የድጋፍ ትብብር እንድደረግላቸዉ እናሳዉቃለን።

ከሠላምታ ጋር

Health Office

Najemedin Alleki Al

ANNEXURE E: PARTICIPANT OR RESPONDENTS INFORMATION SHEET

Title of the study: A model for continuum of care to reducing maternal and neonatal deaths, North Western Ethiopia.

Names of affiliation of researchers: Mr. Solomon Abtew Adete a PhD student at UNISA, cell phone: +251913343713 and Prof. RM Mmusi-Phetoe, University of South Africa, Pretoria, South Africa.

We are conducting research and we would like to ask you to take part. We proposed the research to seek information from women who gave birth in the past nine months irrespective of their birth place in Assosa Zone North western Ethiopia. The information will be collected from all health facilities of Bambasi, Ura and Abrehamo district health facilities on completion of MNH CoC services from ANC through PNC and factors affecting the completion of the services for the development of MNH CoC model to reduce maternal and neonatal deaths. We also seek information from health workers, health extension workers, experts, directors, kebele leaders, health development leaders and religious leaders. We hope that when we get information on your practical experience, the information will help us to understand what will be proposed to support women to complete MNH CoC services.

During this study, there are many participants that will expect to be participated. The first will be women who gave birth in the past nine months prior to the present study while after they received measles vaccination for their children, visited under-five and family planning clinics and who are chosen for an interview. The second group will be women who gave birth in the past nine months prior to the study, women development army leaders, kebele leaders, religious leaders, health extension workers, health providers, facility heads, district officers and directors and who will be selected purposively for an individual in-depth interview. During this data collection there is no right or wrong answers and all your responses will be important and you can answer in your own words and freely. The duration for the interview expected to be 60-75 minutes. The data to be collected will be about your practical experience staring your pregnancy to your post-natal periods of continuity of care utilisation and barriers or factors that affect your MNH CoC service utilisation.

All the information you will provide me will be kept confidential, your name will not be recorded on tape recorder or typed on paper. The information will be recorded on a tape recorder and latter transcribed in words. During transcription a number will be given to our conversation and the only persons that will know about our conversation will be my supervisor and transcriber.

In all of the process, the study may not have any harms except taking your time and will have many gains. The possible benefit of the study could be to develop maternal and neonatal continuum of care model development to reduce maternal and neonatal deaths. During data collection you will also benefit to improve your awareness related to completion of MNH CoC services. It will also help health managers to improve the quality of MNH service provision in the health facilities. You will not be harmed while you give any information but you may lose your time and may feel emotional while telling your story and problem you faced.

While giving any information, you can interrupt at any point without any preconditions at any time even after you have agreed to participate in the study. Such withdrawal will not have any effect on the service provision by health providers.

For any information you require you can contact the researcher or his supervisor through the following address.

Name of researcher and address: Mr. Solomon Abtew Adete, email: abtewsolomon5@yahoo.com or 13112112@mylife.unisa.ac.za

Supervisor name and address: Prof RM Mmusi-Phetoe, email: emphetrm@unisa.ac.za

ANNEXURE F: PARTICIPANT/ RESPONDENTS
ENGLISH CONSENT FORM

I, _____, confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation for the title of “A model for continuum of care to reducing maternal and neonatal deaths, North Western Ethiopia”.

I have read (or had explained to me) and understood the study as explained 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 drawback. 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 interview and other means of data collection. I have received a signed copy of the informed consent agreement.

Participant Signature……..Date……

Name of researcher: Mr. Solomon Abtew Adete, emails: abtewsolomon5@yahoo.com or 13112112@mylife.unisa.ac.za cell phone: +251913343713

Supervisor: Prof RM Mmusi-Phetoe, email: emphetrm@unisa.ac.za

ANNEXURE G: INTERVIEWER ADMINISTERED QUESTIONNAIRE FOR WOMEN (ENGLISH VERSION)

Instruction: encircle the questions below who have choices and write the appropriate answer for those not have choices.

Part I: Socio- demographic factors		
SN	Questions	Answers/choices
1	What is your present age?	(_____) Complete years
2	Religion	1. Orthodox Tewahido 2. Muslim 3. Protestant 4. Catholic 5. Others (Specify)-------
3	Marital status	1. Married 2. Cohabiting 3. Divorced 4. Widowed 5. Single 6. Separated
4	At what age did you get married? (Only first marriage)	(_____) Years
5	Educational status	1. No formal education 2. Primary education (1-8) 3. Secondary education (9-12) 4. College and above
6	Ethnicity	1. Berta (Benishangul) 2. Amhara 3. Oromo 4. Tigre 5. Others specify----------
7	Occupation	1. Farmer 2. Housewife 3. Employee 4. Merchant 5. Student 6. Day labourer 7. Others specify ------
8	Husband occupation	1. Farmer 2. Employee (private/ government) 4. Merchant 5. Student 6. Day labourer 7. Others specify ------
9	Residency	1. Urban 2. Rural
10	Average family monthly income	(_____) ETB complete

Part II: Family and community contributory factors		
1	Who is the primary decision maker from your family members for attending maternity and newborn continuum of care? (more than one answer is possible)	1. Woman herself 2. Husband 3. Both woman and husband 4. Family 5. Friends 6. Relatives
2	Was your partner/family support you to used continuum of care services in your recent child?	1. Yes 2. No
Part III: Transportation factors		
1	How far is the health institution from your home in terms of time you spent to reach the health facility?	(_____) hrs. or (_____) minutes
2	Which mode of transport did you mainly use to reach at the health facility?	1. Onfoot 2. Ambulance 3. Public transport 4. Traditional stretcher "*kareza"* 5. Other (specify)……..….
3	Did you get ambulance service when seeking to deliver your present youngest child?	1. Yes 2. No
4	If yes, did you get an ambulance service before giving or after giving birth?	1. Before birth (home to health facility 2. After birth (health facility to home) 3. Both
5	If your delivery was emergency, would you get a chance of ambulance transport?	1. Yes 2. No
Part IV: Home factors		
1	What is the main source of drinking water for members of your household?	1. Piped water 2. Dug well 3. Spring 4. River/stream 5. Others (*Specify*)_____
2	What do you usually do to make the water safer to drink? Multiple answer	1. Nothing 2. Boiling 3. Add bleach/Chlorine 4. Filter through cloth 5. Others (Specify)……
3	What kind of toilet facility do members of your household usually use?	1. No facility but bush/open field 2. Flush toilet 3. pit latrine 4. Other(specify)_____
Part V: Information, Education and Communication (IEC) factors		
1	Did you get information related to Maternal and newborn Continuum of care services?	1. Yes 2. No
2	If yes, from where did you get information related to Continuum of Care services	1. HEWS 2. Women Development army 3. Health Workers 4. Relatives

		5. Community leaders 6. Neibours 7. Mass media 8. Others specify
3	How often do you listen radio or watch television?	1. Almost every day 2. At least once a week 3. Less than once a week 4. Not at all
Part VI: Health service factors		
From the questions below, choose one response:		
1	How do you rate the infrastructure of the health centres?	1. Excellent 3. Fair 2. Good 4. Poor
2	How do you rate the services provided by public health facilities?	1. Excellent 3. Fair 2. Good 4. Poor
3	How do you rate the health workers in public health centres?	1. Rude 3. Caring 2. Sympathetic 4. Skilled
4	If all factors were favorable, where would you have preferred to attend ANC, deliver and PNC?	1. At home 3. Health Post 2. TBA 4. Public Health centres 5. Hospitals
Part VII: Knowledge of women on reproductive and skilled delivery services		
1	Have you heard about optimal birth interval between two consecutive births?	1. No 2. Yes
2	What is the optimum number of years between two successive births?	1. Below two years 2. two to five years 3. Above five years 4. I don't know
3	What are the health disadvantages short birth interval for the mother and the child? (Do not read, more than one response)	**The mother** 1. None 2. Anemia 3. Bleeding 4. Death 5. Don't know **Child** 1. None 2. Low birthweight 3. Preterm baby 4. Death 5. Don't know
4	Do you know any modern method that women and men can use to prevent pregnancy?	1. No 2. Yes 3. Do not know
5	When do you think is the appropriate time to begin ANC after amenorrhea?	1. Any Time 2. Within the first 4 months 3. Within 5-6 months 4. term of the pregnancy 5. Don't know 6. Others (specify)……
6	How many times do you think a women need to go for ANC in a health facility during pregnancy.	(_____) in number
7	Does a pregnant woman need to prepare to deliver?	1. Yes 2. No 3. Do not know
8	Can you tell me what problems that can happen during pregnancy, labour, and after delivery that require immediate attention from a trained health care worker or health facility? (*Do not read*, *Multiple answers possible)*	**During pregnancy:** 1. Severe headache or high blood pressure 2. Blurred vision or convulsion/eclapsia 3. Absence or less movement of foetus 4. Swelling of hands, legs and face 5. Any amount of bleeding or watery gush of fluid discharge per vagina at any gestational age during pregnancy

		During delivery: 1. prolonged labour 2. excessive vaginal bleeding 3. delay in placental expulsion 4. severe abdominal pain 5. rupture uterus 6. foetus in abnormal position 7. cord prolapsed/baby's hand or feet coming out first and cord around neck 8. mal presentation other than head seen in the birth passage (Buttocks, hand, foot) **During post-natal:** 1. high fever 2. foul smell discharge 3. Do not know
9	Do know newborn danger signs? *(Do not read, multiple answer possible)*	1. Poor sucking or not able to breastfeeding 2. Fever 3. Fast breathing 4. Difficulty of breathing 5. Lethargic or unconscious or weakness 6. Hypothermia 7. Convulsion 8. Umbilical infection/such as redness of the cord 9. Jaundice or yellowish discoloration of palms/soles 10. Vomiting 11. Others (Specify)

Part VIII: Pre-pregnancy, pregnancy, Skilled delivery, and post-natal period questions

From the questions below, please choose a response or responses from corresponding column

Pre-pregnancy

No	**Questions**	**Responses**	
1	How many times have you been pregnant?	(_____) times	
2	How many live births have you had?	(_____) livebirths	
3	What was the interval between the birth of the last child and the birth of his/her immediate elder child?	(_____) in months	
4	How many children want to have?	(_____) children	
5	Did you have history of the following before the current child?	No	Yes
	Previous preterm newborn		
	history of still birth		
	History of neonatal death		
	history of abortion		
	Previous newborn low weight		
	Previous cesarean section		
6	Have you encountered any of the complications during your previous pregnancy?	1. Yes 2. No	
7	If yes, which common complications you phased? More than one answer possible	1. Vaginal bleeding 2. Vaginal gush of fluid 3. Severe headache 4. Blurred vision 5. Blood pressure 6. Anemia 7. Fever	

		8. Abdominal pain 9. Convulsion 10. Other (Specify)…		
8	Have you ever used any modern F/P method to delay or avoid getting pregnant of the last baby?	1. No 2. Yes		
9	At the time you got pregnant with your last baby; did you want to get pregnant time?	1. Yes 2. No		
10	If your answer is no in Question 9, what was the reason to become pregnant?	1. Lack of awareness 2. Fear of side effect FP 3. Only interest of my partner 4. Because of breastfeeding 5. Others(specify)---------		
Antenatal care during the last pregnancy				
11	Have you ever attended ANC follow up for your current recent child?	1. No 2. Yes		
12	If your answer to Q# 13 is no, what were the possible reasons for not use ANC? (Do not read, more than one answer possible)	1. Not aware where to go 2. It was not necessary 3. Busy for family care 4. Husband or family member were not volunteer 5. Facility was too far 6. Perceived poor quality of maternity services 7. Concern that a female health worker may not be available 8. Was healthy 9. Other (Specify)		
13	At what time have you started first ANC visit?	1. (_____) months 2. Don't remember		
14	How many times did you receive antenatal care?	1. (_____) times 2. Don't remember		
15	Did you receive fourth ANC services?	1. No 2. Yes		
16	Where did you receive ANC service? (Only one answer possible, If there is referral linkage please, use the higher health care facility)	1. Government Hospital 2. Health centre 3. Health post 4. Private clinic 5. Home		
17	During (any of) your antenatal care visit(s), were you told about the signs of pregnancy complications or danger sign of pregnancy?	1. No 2. Yes		
18	During any of antenatal visit, did health workers tell you about birth preparedness plan?	1. No 2. Yes		
19	During your present pregnancy, how many times did you receive a tetanus toxoid injection/vaccination?	1. (____) times 2. Don't know		
20	How many days did you take iron/folic acid tablets during your recent pregnancy?	1. (_____) days 2. Don't know		
21	During your recent pregnancy, were any of the following done by health providers at least once	Yes	No	Do not know
	Body weight measured			
	Blood pressure measured			

	Urine sample taken			
	Fundal height measured			
	Tested for syphilis			
	Advised about diet and nutrition			
	Tested for HIV			
	Discussed for family planning services			
	Discussed for advantage of facility delivery and PNC			
	Discussed on adverse effect of malaria during pregnancy and its prevention (E.g. ITN utilization)			
	Hepatitis testing			
Labor and delivery				
22	What were your gestational age for the recent birth?	1. (_____) Months 2. Don't know		
23	Place of delivery	1. Hospital 2. Health Center 3. Health Post 4. Private Hospital/Clinic 5. Home		
24	Reasons for not delivering at health care facilities? ***(Do not read, multiple response is possible)***	1. Lack of awareness 2. Sudden onset of labour 3. Husband/family refusal 4. Comfortable to give birth in front of TBAs and relatives 5. Financial constraints 6. Long distance to health facility 7. Inconvenient transport 8. Being busy for childcare 9. Poor quality of service 10. Long waiting time after delivery 11. Don't trust facility 12. Unavailability of delivery equipment 13. Unavailability of drugs 14. Friend's influence 15. Previous bad experience in healthcare facility 16. Little respect from healthcare workers 17. Fear of operation 18. Facility closed 19. Others (specify)		
25	What was the mode of delivery for your recent baby?	1. Spontaneous vaginal delivery 2. Assisted vaginal delivery 3. Cesarian section (C/S)		
26	Did you or your family pay for services related to delivery?	1. No 2. Yes		
27	During the recent labour and delivery care, were any of the following done at least once?			
		No	Yes	Don't know
	Did providers greet you respectfully?			
	Did adequate privacy given to you during the examination by the health worker?			
	Were you allowed to have a companion with you during your labour and delivery?			
	Did the providers encourage taking food or fluid in the process of labour?			
	Did the providers allow you to sleep your preferred position during labour?			

	Overall, did providers offer compassionate delivery care?			
28	Think about your experience; are you in a position to deliver again in this same facility?	1. No 2. Yes		
29	Did you or your baby experience any complication during or after your delivery**?**	1. No 2. Yes		
30	Did the health centre provide emergency care for these complications?	1. No 2. Yes		
31	If no, what was the primary reason you did not receive emergency care? (*Do not read loud; multiple response is possible)*	1. No skilled birth attendant 2. Necessary drugs unavailable 3. Necessary medical supplies/equipment unavailable 4. No transport to secondary hospital 5. Other (Please specify: ---------		
32	Overall, how do you rate the following types of service in terms of your satisfaction during delivery care at this facility?			
	Staff approach	Satisfied	undecided	Dissatisfied
	Waiting time	Satisfied	undecided	Dissatisfied
	Privacy issue	Satisfied	undecided	Dissatisfied
	Charge of services	Satisfied	undecided	Dissatisfied
	Quality services	Satisfied	undecided	Dissatisfied
	Skill of health Workers	Satisfied	undecided	Dissatisfied
Postnatal and newborn care				
33	Did you have any postnatal checkup in your last delivery?	1. No 2. Yes		
34	After the delivery, in what time did the first health check take place? (Multiple response possible)	1. Less than 24 hours 2. With in 25-48 hours 3. 49-72 hours 4. 73 hours-6 wks 5. > 6 weeks		
35	Where did you get the post-natal service?	1. At own home 2. Health post 3. Health centre 4. Public hospital 5. Private clinic/hospital		
36	What type of services you got during post-natal care? (Do not read responses)	1. Asked about the nature of vaginal discharge 2. Advised about breastfeeding 3. Advised danger signs 4. Advised on diet and nutrition 5. Advised on family planning 6. Informed date of re-check up 7. Others (Specify)		
37	If your answer is yes in Q.No 33, what was your reason for attending health facilities for postnatal care? (Do not read the responses but need to probe)	1. I was sick 2. Baby was sick 3. To check my and the baby's health 4. For child immunization 5. To get F/planning 6. Counselling on breastfeeding 7. Blood test for anemia 8. To obtain Information on danger signs of problems 9. others(specify)_		

38	What was your reason for not attending postnatal care? *(*Multiple response is possible*)*	1. Respondent did not think necessary 2. The forty days rule, i. e confinement at home 3. Lack of support person 4. Husband/family didn't think necessary 5. Facility was too far 6. No transport accesses 7. Perceived poor quality 8. High cost of service 9. Husband/family did not allow 10. No complications experienced 11. Little respect from healthcare worker 12. Previous bad experience at facility 13. Friend's influence 14. Do not trust facility 15. Other (specify)
39	How long you waited at the healthcare facility before discharged out.	(_____) Hours
40	After you gave birth to, did anyone check on your health while you were still in the facility?	1. No 2. Yes 3. Do not remember
41	Who checked your health after you left the health facility	1. HEWs 2. Midwives 3. Doctor 4. HDA 5. No one
Neonatal Care		
42	How much did your baby weigh?	1. (_____)K.g 2. Don't know
43	What was the condition of the baby at birth? (Do not read)	1. Apparently normal 2. Complicated health problem 3. Preterm 4. Others(specify)_____
44	Approximately how long after delivery did you first breastfeed your baby?	1. Immediately 2. 30 minutes -1 hr 3. 2-4hrs 4. 3 Days 5. Other (specify
45	Did you give any fluid to baby before six months?	1. No 2. Yes
46	If yes Q 45, what did you give?	1. Cow milk 2. Water 3. Better 4. Other specify ----
47	How often do you breastfeed your baby in a day?	(____) times
48	When did you start bathing the baby?	1. Immediately after birth 2. 1–2hrs after birth 3. 3–4hrs after birth 4. 5–6hrs after birth 5. 7 +hrs after birth 6. Other specify
49	What care the neonate got immediately after birth?	1. TTC 2. Chlorohexidine 3. I do not know
50	Was your baby immunized at birth?	1. No 2. Yes
51	If immunized, what vaccines got	1. Polio

		2. BCG 3. I do not know
52	If not vaccinated what was the reason	1. No vaccines 2. The time is not convenient 3. Not volunteer to vaccinate the child 4. Shortage of health workers 5. other, specify ---
53	Was your baby ill immediately after birth	1. No 2. Yes
54	If yes, tell me the illness. (Multiple answer possible)	1. Difficulty in Breathing 2. Jaundice 3. Inability to suckle 4. Fever 5. Other (specify)
55	What do you do to treat your baby?	1. Nothing 2. Give traditional medicine 3. Take Baby to the Hospital/HC/HP 4. Other (specify)
	Post-Partum Family planning	
56	When your menstruation resumed after birth?	(_____) months
57	When did you start sexual intercourse after recent birth?	1. Not started yet 2. Within 7 days 3. 8-14days 4. 15-42 days 5. After 42 days 6. Others (specify)
58	Are you currently breasting feeding your child?	1. No 2. Yes
59	Since birth of your last baby, were you counselled to take post-partum family planning?	1. No 2. Yes
60	Since birth of your last baby, were you or your partner currently using any modern type of family planning?	1. No 2. Yes
61	If yes, which method are you/your partner currently using? record all mentioned	1. Female sterilization 2. Male sterilization 3. IUCD 4. Condom 5. Depo 6. Implants 7. Pill 8. Others (specify)……
62	If no, what was the reason for not using contraceptive?	1. Desire to have children 2. Low risk of pregnancy 3. Menstruation is not resumed 4. Husband or partner is not around 5. Opposition from partner 6. Other_____
63	Was your husband supported you in issues related to family planning services?	1. No 2. Yes
64	How best did your husband assist you regarding the use of family planning services? (multiple responses possible)	1. Taking F/P himself 2. Supporting through provision of transport 3. Reminding on dates of appointment 4. Use of condoms (both male and female condoms) 5. Any other (specify) …
65	What is your pregnancy status now?	1. I am pregnant now 2. Not pregnant

		3. Don't Know……
66	For the CoC, what supports you got from the community	1. Encouraged me to use services 2. Counseling 3. Support to deliver in the health facilities 4. Provide financial support for the transportation 5. Together with me went to the health facility 6. Provided me food 7. HDA leader visited me 8. Got experience sharing from other women 9. others specify
67	What are your suggestions for improving continuum of maternal and neonatal health services at government primary health facilities?	1. Health facilities solve the shortage of equipment and drugs 2. Improve the ambulance service 3. improve the referral service 4. improve cleanness of facilities 5. HFs open always 6. Need to improve referral challenges 7. HWs care all women equally 8. HFs convenient to services 9. Respectful care by HWs
68	If you want to have additional children, will you complete the required CoC at ANC attendance, SBA and PNC attendance?	1. No 2. Yes 3. I do not know
69	If your answer is yes in Qn 78, what are the reasons?	1. To keep the health status of my and my neonate 2. For early prevention 3. Previously I have complications and to prevent the expected complications early 4. To follow the neonatal (foetal development) development 5. To get recommended investigations 6. To prevent hemorrhage 7. Others specify

ANNEXURE H: INDIVIDUAL IN-DEPTH INTERVIEW FOR WOMEN (ENGLISH VERSION)

	Respondent Characteristics:		
	Circle or fill in the blank space for responses according to the nature of the question and record through the recorder		
NO	Question and filters		Response
1	Questionnaire Id number		(_____)
2	Category of kebele		1. Urban 2. Rural
3	Age of the respondent		_____
4	Religion of respondent		1. Orthodox Tewahido 2. Muslims 3. Protestant 4. Catholic 5. Others
5	Education level of respondent		1. Not have formal education 2. Primary (1-8th grade) 3. Secondary (9-12th grade) 4. College and above
6	Jobs of respondent		1. Farmer 2. House wife 3. Private/ government employee 4. Merchant 5. Student 6. Daily labourer 7. Other
7	What is the most usual transportation type for the Kebele's population to reach at the nearest	Hospital	1. On foot 2. On donkey/ mules back 3. Vehicle 4. Others (Specify)……
		Health centre	1. On foot 5. On donkey/ mules back 2. Vehicle 3. Others (Specify)……
		Health post	1. On foot 6. On donkey/ mules back 2. Vehicle 3. Others (Specify)……
8	How do you evaluate the nature of road to health facility?		1. Convenient 2. Inconvenient
9	What is the average distance from your kebele to health centre or hospital		1. Near 2. Medium 3. Far
10	During delivery, were you received ambulance services?		1. Yes 2. No
11	If your response on question 10 is yes, were you received the ambulance service before or after delivery?		1. Before delivery (from house to health facility) 2. After delivery (from health facility to home) 3. both

12. What is your understanding of continuum of maternal and neonatal health services in the health facilities?

_____
_____
_____

13. In your opinion, why you utilised continuum of maternal and neonatal services?

_____
_____
_____

14. What are the determinant factors that affect you not to utilise the continuum of care services?

_____
_____
_____
_____

15. How satisfied were you by the care you received from the skilled health worker?

1. Completely Satisfied
2. Partially Satisfied
3. Neither satisfied nor dissatisfied
4. Dissatisfied

16. What were the reasons for your dissatisfaction? (Open-ended)

_____
_____

_____
_____

_____
_____

17. How do you rate the quality of care you received from continuum of care services?

_____
_____
_____
_____

18. Explain the support you got to use continuum of maternal and neonatal service from your kebele, women development army and the community?

_____
_____
_____
_____
_____

ANNEXURE I: INDIVIDUAL IN-DEPTH INTERVIEW FOR KEBELE ADMINISTRATORS, WOMEN DEVELOPMENT ARMY, RELIGIOUS LEADERS, HEALTH WORKERS AND HEWS (ENGLISH VERSION)

	Respondent Characteristics:		
	Circle or fill in the blank space for responses according to the nature of the question and record through the recorder		
NO	Question and filters		Response
1	Questionnaire Id number		(_____)
2	Type of interviewer		1. Kebele leader 2. Women development leader 3. Religious leader 4. known leader 5. health Extension Worker 6. Health Worker 7. Officer/expert
3	Category of kebele		2. Urban 2. Rural
4	Age of the respondent		_____
5	Religion of respondent		1. Orthodox Tewahido 2. Muslims 3. Protestant 4. Catholic 5. Others
6	Education level of respondent		1. Not have formal education 2. Primary (1-8th grade) 3. Secondary (9-12th grade) 4. College and above
7	Jobs of respondent		1. Farmer 2. House wife 3. Private/ government employee 4. Merchant 5. Student 6. Daily labourer 7. Other
8	What is the most usual transportation type for the Kebele's population to reach at the nearest	Hospital	7. On foot 8. On donkey/ mules back 9. Vehicle 10. Others (Specify)……
		Health centre	4. On foot 11. On donkey/ mules back 5. Vehicle 6. Others (Specify)……
		Health post	4. On foot 12. On donkey/ mules back 5. Vehicle 6. Others (Specify)……
9	How do you evaluate the nature of road to health facility?		3. Convenient 4. Inconvenient
10	What is the average distance from your kebele to health centre or hospital		4. Near 5. Medium 6. Far

11	During delivery were all women received ambulance services in your locality?	3. Yes 4. No
12	If your response on question 11 is yes, were they received the ambulance service before or after delivery	1. Before delivery (from house to health facility) 2. After delivery (from health facility to home) 3. both

13. What is your understanding of continuum of maternal and neonatal health services in the health facilities?

_____

_____

_____

_____

14. In your opinion, why women utilise continuum of maternal and neonatal services in your localities /kebeles?

_____

_____

_____

_____

15. What are the determinant factors that affect women not to utilize the continuum of care services?

_____

_____

_____

_____

16. In your localities did you expect that all pregnant women satisfied by the care they received from the skilled health worker?

1. Completely Satisfied
2. Partially Satisfied
3. Neither satisfied nor dissatisfied
4. Dissatisfied

17. What were the reasons for their dissatisfaction? (Open-ended)

_____

_____

_____

18. How do you rate the quality of care the women received from continuum of care services?

_____

_____

_____

19. Explain the support you provided to the women to utilise continuum of maternal and neonatal service in your kebele?

_____

_____

_____

_____

Additional for health workers and HEWs only

20. Did you expect that women received all necessary services during ANC, delivery and PNC in your facility? Probe the following (Physical examination, laboratory investigation, Treatments, overall counseling score, counseling on danger signs of pregnancy, counseling on birth preparedness, advice on importance of postpartum visit, counseling on PMTCT and healthy eating, handwashing practice, client health care provider interaction, counseling on follow-up visit, registration practice and overall quality of ANC)

ANNEXURE J: INDIVIDUAL IN-DEPTH INTERVIEW FOR PERSON IN CHARGE OF THE FACILITY (MANAGER) OR ANY OTHER CONCERNED HEALTH WORKER TO ASSESS HEALTH FACILITIES (ENGLISH VERSION)

Interviewer: Ask the following questions to the person in charge of the facility (manager) or any other concerned health Worker		
Part 1: **Interviewees background**		
1	What is your current position in the health care facility?	……..
2	Age	_____ Years
3	Sex	1- Male 2- Female
4	Qualification	1- Doctor 3. Nurse 2- Health office 4. Midwife 1- Others……..
5	Total Work experience in years	_____Years

	Part 2: Health facilities of overall services		
No	Question	RESPONSE	
1	Facility name	……	
2	Type of facility	1. Hospital 2. Health Center	
3	Location of facility	1. Urban 2. Rural	
	Part 3: Infrastructure	Yes	No
	Basic equipment		
1	Adult scale		
2	Child scale		
3	Thermometer		
4	Stethoscope		
5	Blood pressure apparatus (Sphygmomanometer)		
6	Fetal stethoscope (Fetoscope):		
7	Gloves (non-sterile)		
8	Gloves (sterile)		
9	Vacuum aspiration equipment (MVA) set		
	Communication	Yes	No
10	Does this facility have a functioning cellular telephone or a private cellular phone that is supported by the facility?		
11	Does this facility have a functioning computer?		
	Ambulance/transport for emergencies		
12	Does this facility have a functional ambulance for emergency transport for clients that is stationed at this facility?	1. Yes 2. No	
13	Is fuel for the ambulance vehicle available today?	1. Yes 2. No	
	Power supply		

14	Does your facility have electricity from any source (e.g. electricity grid, generator, solar, or other) including for stand-alone devices (EPI cold chain)?	1. Yes 2. No	
15	What is the facility's main source of electricity?	1. Electricity 2. Generator 3. Solar system 4. Other (specify_____	
16	Other than the main or primary source, does the facility have a backup source of electricity? IF YES, what is the secondary source of electricity?	1. No secondary source 2. Diesel Generator 3. Solar system 4. Other (specify) __	
	Basic client facilities		
17	Is the health facility have maternity waiting home?	1. Yes 2. No	
18	If yes, are women utilized maternity waiting home	1. Yes 2. No	
19	Reasons not used maternity waiting home, what are the reasons	1. Lack of food 2. Awareness gap 3. Not suitable for women 4. Not furnished 5. Others specify	
20	Is water available with in the health facility compound?	1. Yes 2. No	
21	What is the most commonly used source of water for the facility at this time?	1. Pipe 2. Protected spring 3. Protected dug well 4. Unprotected spring 5. Unprotected dug well 6. Others (specify)..	
22	Is there a room with auditory and visual privacy available for maternal consultations?	1. Auditory privacy only 2. Visual privacy only 3. Both auditory and visual 4. Privacy 5. No privacy	
23	Is there a toilet (latrine) in functioning condition that is available for general outpatient client use?	1. Yes 2. No	
24	Patient toilet has water for hand washing	1. Yes 2. No	
25	Patient toilet has soap for hand washing	1. Yes 2. No	
	Diagnostic Capacities	Yes	No
26	Is there any of the following diagnostic facilities in the healthcare facility?		
	Hemoglobin		
	Blood glucose		
	Malaria diagnostic capacity		
	Urine dipstick-glucose		
	HIV diagnostic capacity		
	Syphilis test		
	Urine pregnancy test		
	Infection control at the units of *ANC, delivery and PNC rooms*	Available	Not Available
27	Are the following items used for processing of equipment for reuse are		

	available and functional in the facility today		
	Personal protective barriers for IP practice		
	Hand-washing soap		
	Hand rub alcohol		
	Disinfectant like chlorine or alcohol		
	Triple bucket system • 0.5% Chlorine solution for decontamination • Soapy water for rinsing • Clean water for further rinsing		
	Waste receptacle (pin) with lid and plastic bin liner		
	Safety box		
	autoclave		
	Boiler		
28	How does this facility finally dispose of sharps wastes?	1. Burn incinerator 2. Open burning 3. Dump without burning 4. Remove offsite	
29	How does this facility finally dispose of medical waste other than sharps boxes?	1. Burn incinerator 2. Open burning 3. Dump without burning 4. Remove offsite	
	Staffing		
30	**Staff in the health facility**	Yes	No
	Generalist (non-specialist) medical doctors	_____	_____
	Gynecologist and obstetrician	_____	_____
	Integrated emergency (general surgery and gyni/obs) surgery professionals		
	Health officer		
	Nurses of all categories		
	Midwives		
	Pharmacist		
	Laboratory technicians/technologists		
	Inpatient and observation beds		
	Available services	Yes	No
31	Does the facility offer the following services every day that facility is open?		
	Antenatal care		
	Delivery (including normal delivery, basic emergency obstetric care, and/or comprehensive emergency obstetric care) and/or newborn care services		
	Postpartum care services (for mother)		
	Family planning services		
	Post abortion care		
	Diagnosis/treatment/counseling for sexually transmitted infections		
	Child health services		
	VCT on HIV		
	PMTCT		
	Emergency services and referral		

	Family planning services				
32	Are any of the following family planning available in this service site today? (***multiple answers possible)***	1. Combined estrogen progesterone oral contraceptive pills 2. Progestin-only contraceptive pills 3. Progestin-only injectable contraceptives 4. Male condoms 5. Female condoms 6. Intrauterine contraceptive device (IUCD) 7. Implants 8. Emergency contraceptive pills			
	Obstetric and newborn care services for knowledgeable health workers)				
33	Does this facility routinely administer oxytocin injection immediately after birth to all women for the prevention of post-partum hemorrhage?	1. Yes 2. No			
34	Are the following interventions for the management of complications in the last 12 months by providers	Yes		No	
	Parenteral administration of antibiotics (IV or IM)				
	Parenteral administration of oxytocic for treatment of post-partum hemorrhage (IV or IM)				
	Parenteral administration of magnesium sulfate for management of preeclampsia and eclampsia (IV or IM)				
	Assisted vaginal delivery				
	Manual removal of placenta				
	Removal of retained products of conception				
	Neonatal resuscitation				
	Caesarean section				
	Anesthesia services				
	Blood transfusion				
35	Are the following equipment available?	Available		Functioning	
		Yes	No	Yes	No
	Examination light (flashlight)				
	Delivery pack				
	Cord clamp				
	Episiotomy scissors				
	Blade to cut cord				
	Suture material with needle				
	Needle holder				
	Manual vacuum extractor				
	Vacuum aspirator kit				
	Incubator				
	Blank partograph				
	Delivery bed				
	Resuscitation table (with heat source)				
	Newborn bag and mask size 1				
	Newborn bag and mask size 0				
	Electric suction pump (for suction apparatus)				

	Suction catheter (for suction apparatus)				
36	Are any of the following medicines available?	Available		Not available	
	Antibiotic eye ointment (for new born)				
	Gentamicin injection				
	Ceftriaxone				
	Ampicillin powder for injection				
	Metronidazole injection				
	Ciprofloxacin				
	Benzathine penicillin powder for injection				
	Benzyl penicilline				
	Skin disinfectant				
	Chlorhexidine				
	Betamethasone injection				
	Dexamethasone injection				
	Oxytocin injection				
	Tetanus toxoid				
	Iron/ folic acid				
	Intravenous solution with infusion set (normal saline, ringer lactate)				
	Oxygen(complete set)				
	Calcium gluconate injection				
	Magnesium sulphate injectable				
	Antiretroviral drugs (ART)				
	Insecticide treated bed nets				
	Anti-malaria drugs				
	Anti-helminthic drugs (mebendazole)				
	Hydralazine injection or Methyldopa or propranolol or any other antihypertensive				
	Diazepam (injection)				
37	Cesarean section (for facilities only who perform)				
	Does this facility have a health professional who can perform caesarean section for 24 hours			1. Yes 2. No	
Laboratory services equipment and reagents availability					
38	Are the following services available?	Are available		Provided the past one year without interruption	
		Yes	No	Yes	No
	Syphilis testing				
	Hemoglobin or hematocrit				
	Proteinuria (urine analysis)				
	HIV test				
	Pregnancy test				
	Blood glucose test				
	Microscopy or rapid diagnostic test (RDT) for malaria parasites				

	Blood grouping (ABO and Rh)				
	Cross match				
	Hepatitis B test				
	Stool examination				
	Emergency Services and Referral				
39	Are the following services available for 24 hours?		Yes		No
	skilled attendant for maternity services				
	Are services for caesarean section (only facilities who perform)				
	Does this facility have a working ambulance to refer an obstetric emergency?				
	Is the ambulance in working condition at all times?				
	Is the ambulance has fuel at all times				
	Do facility uses service fees to cover costs of transport?				
40	To what facility do you usually refer obstetric complications?		1. Health Center 2. Hospital		
41	Does the referral site always have an obstetrician or physician having capacity to do surgery on duty?		1. No 2. Yes 3. Do not know		
42	Does the referral site always have a blood bank?		1. No 2. Yes 3. Do not know		
43	When you refer a case to another facility how often, you get feedback on the outcome of the case?		1. none 2. Sometimes 3. always		

ANNEXURE K: PARTICIPANT OR RESPONDENTS AMHARIC VERSION INFORMATION SHEET

የ ተ ሳ ታ ፊ ወይም ምላሽ ሰ ጪዎች ሚ ጃ

የ ጥ ና ቱ ር ዕ ስ ፡- የ እ ና ቶ ች እ ና አ ራ ስ ሕ ፃ ና ት ሞ ት ን ለ መ ቀ ነ ስ ቀ ጣ ይ ነ ት ያ ለ ው እ ን ክ ብ ካ ቤ ስ ል ት ፣ ሰ ሜ ን ም ዕ ራ ብ ኢ ት ዮ ጵ ያ ።

የ ተ መ ራ ሚ ዎ ች ስ ም - አ ቶ ሰ ለ ሞ ን አ ብ ተ ው አ ዴ ቴ በ ዩ ኒ ሳ የ ዶ ክ ት ሬ ት ተ ማ ሪ ፣ ሞ ባ ይ ል ስ ል ክ +251913343713 እ ና ፕ ሮ ፌ ሰ ር ሮ ዝ ም ሚ ፌ ቶ የ ደ ቡ ብ አ ፍ ሪ ካ ፕ ሪ ቶ ሪ ያ ዩ ኒ ቨ ር ሲ ቲ መ ም ህ ር በ ሆ ኑ ት ነ ው ።

የ እ ና ቶ ች እ ና አ ራ ስ ሕ ፃ ና ት ሞ ት ን ለ መ ቀ ነ ስ ቀ ጣ ይ ነ ት ያ ለ ውየ እ ና ቶ ች እ ና አ ራ ስ ሕ ፃ ና ት የ ጡ ፍ እ ን ክ ብ ካ ቤ ስ ል ት ጥ ና ት እ ያ ደ ረ ግ ን ስ ለ ሆ ነ እ ን ድ ት ሳ ተ ፉ እ ን ጠ ይ ቃ ለ ን ። ይ ህ ጥ ና ት የ ሚ ከ ና ወ ነ ው በ አ ሶ ሳ ዞ ን ሰ ሜ ን ም ዕ ራ ብ ኢ ት ዮ ጵ ያ በ ሚ ኙ በ ባ ም ባ ሲ ፣ ኡ ራ እ ና አ ብ ረ ሃ ሞ ወ ረ ዳ ዎ ች ነ ዋ ሪ የ ሆ ኑ ፣ ባ ለ ፉ ት ዘ ጠ ኝ ወ ራ ት ው ስ ጥ የ ወ ለ ዱ እ ና ቶ ች ቀ ጣ ይ ነ ት ያ ለ ው የ እ ር ግ ዝ ና ፣ የ ወ ሊ ድ እ ና የ ድ ህ ረ ወ ሊ ድ ጡ ፍ እ ን ክ ብ ካ ቤ አ ገ ል ግ ሎ ት ማ ጠ ና ቀ ቅ ላ ይ ተ ፅ ዕ ኖ የ ሚ ፈ ጥ ሩ ሚ ጃ ዎ ች ን በ ማ ሰ ብ ሰ ብ ቀ ጣ ይ ነ ት ያ ለ ው የ እ ና ቶ ች እ ና አ ራ ስ ሕ ፃ ና ት የ ጡ ፍ እ ን ክ ብ ካ ቤ ስ ል ት ማ ዘ ጋ ጀ ት ነ ው ። እ ን ዲ ሁ ም ከ ጡ ፍ ባ ለ ሙ ያ ዎ ች ፣ ከ ጡ ፍ ኤ ክ ስ ቴ ን ሽ ን ባ ለ ሙ ያ ዎ ች ፣ ከ ዳ ይ ሬ ክ ተ ሮ ች ፣ ከ ቀ በ ሌ አ ሙ ሮ ች ፣ ከ ጡ ፍ ል ማ ት ሚ ዎ ች እ ና ከ ሃ ይ ማ ኖ ት አ ባ ቶ ች ሚ ጃ ን እ ን ጠ ይ ቃ ለ ን ። በ ተ ግ ባ ራ ዊ ል ም ድ ዎ ላ ይ ሚ ጃ ስ ና ገ ኝ ፣ ሚ ጃ ው ከ እ ር ግ ዝ ና ፣ የ ወ ሊ ድ እ ና ድ ህ ረ ወ ሊ ድ ቀ ጣ ይ ነ ት ያ ለ ው የ እ ና ቶ ች እ ና አ ራ ስ ሕ ፃ ና ት የ ጡ ፍ እ ን ክ ብ ካ ቤ አ ገ ል ግ ሎ ት እ ና ቶ ች ተ ከ ታ ት ለ ው እ ን ዲ ያ ጡ ና ቅ ቁ ም ን ሚ ደ ገ ፍ እ ን ዳ ለ ባ ቸ ው እ ን ደ ሚ ዳ ን ተ ስ ፋ እ ና ደ ር ጋ ለ ን ።

በ ዚ ህ ጥ ና ት ወ ቅ ት ተ ሳ ታ ፊ ይ ሆ ና ሉ ተ ብ ለ ው የ ሚ ጠ በ ቁ ብ ዙ ተ ሳ ታ ፊ ዎ ች ና ቸ ው ። የ መ ጀ መ ሪ ያ ዎ ቹ ከ አ ሁ ኑ ጥ ና ት በ ፊ ት ባ ለ ፉ ት ዘ ጠ ኝ ወ ራ ት ው ስ ጥ የ ወ ለ ዱ እ ና ቶ ች ል ጆ ቻ ቸ ው ን የ ኩ ፍ ኝ ክ ት ባ ት ካ ስ ከ ተ ቡ በ ኋ ላ ፣ ከ አ ም ስ ት ዓ መ ት በ ታ ች የ ሆ ኑ እ ና የ ቤ ተ ሰ ብ እ ቅ ድ ክ ሊ ኒ ኮ ች ን ጎ ብ ኝ ተ ው ለ ቃ ለ ማ ኪ ይ ቅ የ ተ መ ረ ጡ እ ና ቶ ች ና ቸ ው ። ሁ ለ ተ ኛ ው ቡ ድ ን በ አ ላ ማ በ ተ መ ረ ጡ ባ ለ ፉ ት ዘ ጠ ኝ ወ ራ ት ከ ዚ ህ ጥ ና ት በ ፊ ት የ ወ ለ ዱ እ ና ቶ ች ፣ የ ሴ ቶ ች ል ማ ት ሰ ራ ዊ ት አ ሙ ሮ ች ፣ የ ቀ በ ሌ አ ሙ ሮ ች ፣ የ ሀ ይ ማ ኖ ት አ ባ ቶ ች ፣ የ ጡ ፍ ኤ ክ ስ ቴ ን ሽ ን ባ ለ ሙ ያ ዎ ች ፣ የ ጡ ፍ አ ገ ል ግ ሎ ት ሰ ጪ ባ ለ ሙ ያ ዎ ች ፣ የ ጡ ፍ ተ ቋ ም ኃ ላ ፊ ዎ ች ፣ የ ወ ረ ዳ አ ፊ ሰ ሮ ች እ ና ዳ ይ ሬ ክ ተ ሮ ች ጥ ል ቅ ቃ ለ ማ ኪ ይ ቅ በ ሚ ድ ረ ግ ነ ው ፡ በ ዚ ህ ሚ ጃ አ ሰ ባ ሰ ብ ወ ቅ ት ት ክ ክ ለ ኛ ወ ይ ም የ ተ ሳ ሳ ቱ ሜ ል ሶ ች የ ሉ ም እ ና ሁ ሉ ም ም ላ ሾ ች ዎ ጠ ቃ ሚ ና ቸ ው ፡ በ ሚ ሆ ኑ ም በ ራ ስ ዎ ቃ ላ ት

በነጻነት መሞላስ ይችላሉ። የቃለ ሞኪይቁ ቆይታ ከ60-75 ደቂቃዎች ይሆናል ተብሎ ይጠበቃል። የሚሰበሰበው ሚጃ ከእርግዝና እስከ ድህረ ወሊድ ጊዜ ጋር በሚያያዝ የተግባር ልምድዎ እና የእንክብካቤ አጠቃቀምዎ ቀጣይነት እና እንቅፋቶች ወይም በአገልግሎት አጠቃቀም ላይ ተጽእኖ ስለሚያሳድሩ ነገሮች ይሆናል።

የምትሰጠኝ ሚጃዎች በሞሉ በሚስጥር ይያዛሉ፣ ስም በቴፕ ሞቅጃ ወይም በወረቀት ላይ አይፃፍም። ሚጃው በቴፕ ሞቅረጫ ላይ ከተጫዘገበ በኋላ በቃላት ይጻፋል፡፡ በግልባጭ ወቅት ለንግግራችሁ ቁጥር ይሰጥና ስለ ንግግራችሁ የሚያውቁት ብቸኛ ሰዎች የእኔ ተቆጣጣሪ እና ተርጓሚ ብቻ ይሆናሉ። በሂደቱ ሁሉ ጥናቱ ጊዜዎን ከመውሰዱ በስተቀር ምንም አይነት ጉዳት አይኖረውም በጥናቱ መሳተፍዎ ግን ብዙ ይጠቅሜል። የጥናቱ ፋይዳ የእናቶች እና አራስ ሕፃን ሞትን ለመቀነስ የእናቶች እና አራስ ሕፃናት እንክብካቤ ስልት ለማዘጋጀት ይጠቅሜል ተብሎ ይጠበቃል፡፡ በሚጃ አሰባሰብ ወቅት የእናቶች እና አራስ ሕፃናትን አገልግሎት ከማከናወቅ ጋር በተያያዘ ያለዎትን ግንዛቤ ለማሻሻል ይጠቅሜል። በጤፍ ተቋማት ውስጥ ያለውን የአገልግሎት አቅርቦት ጥራት ለማሻሻል ለጤፍ አስተዳዳሪዎችም ይረዳል። ሚጃ በሚሰጠት ጊዜ ምንም አይነት ጉዳት አይደርስብዎትም ነገር ግን ጊዜዎን ሊያጡ እና ያጋጠመዎትን ታሪክ እና ችግር ሲናገሩ የተወሰነ ስሜት ሊሰማዎት ይችላል፡፡ ማንኛውንም ሚጃ በሚሰጠት ጊዜ, በጥናቱ ለመሳተፍ ከተስማሙ በኋላ ያለ ምንም ቅድመ ሁኔታ በማንኛውም ጊዜ ማቋረጥ ይችላሉ፡፡ እንዲህ ዓይነቱን ማቋረጥ በጤፍ አቅራቢዎች አገልግሎት ላይ ምንም ተጽእኖ አይኖረውም ፡ ለሚፈልጉት ማንኛውም ሚጃ ተሟሚውን ወይም ተቆጣጣሪውን በሚከተለው አድራሻ ማግኘት ይችላሉ።

የተሟሚዉ ስም እና አድራሻ፡- አቶ ሰለሞን አብተው አዴቴ፣ ኢሜል፡ abtewsolomon5@yahoo.com/ 13112112@mylife.unisa.ac.za

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ANNEXURE L: PARTICIPANT/ RESPONDENTS
AMHARIC CONSENT FORM

<u>በአሚኛ የተዘጋጀ የፍቃደኝነት ሚገገ ጫቅፅ</u>

ይህ የምርምር ማኪይቅ የሚሰራውአብረሃሞ፡ ዑራ እና ባምሳሲ ወረዳዎቸ ባሉ ወደ መንግስት ጤፍ ተቋማት ለክትባት ክትትል፣ ከአምስት ዓመት በታች ህክምና እና ለበተሰብ ዕቅድ አገልሎት ለሚሞኩ እናቶች ሲሆን የምርምሩም ርዕስ “የእናቶች እና የጨቅላ ህፃናት ሞትን ለመቀነስ ቀጣይነት ያለው የጤፍ እንክብካቤ ስልት” ሲሆነ ይህ ምርምር በደቡብ አፍሪካ ዩኒቨርሲቲ የህብረተሰብ ጤፍ ትምህርት ክፍል የ3ኛ ድግሪ (PhD) ተማሪ በሆኑት በሰለሞን አብተውእና በአማካሪያቸውደቡብአፍሪካ ዩኒቨርሲቲ መምህር በሆኑት በፕሮፌሰር ሮዝ ምሞኺፌቶ ነው ፡

ከቃለ ማኪይቅ በፊት የተሳታፊዎችን ፍቃደኝነት ሚገገ ጫቅፅ

መግቢያ፡ -አንደምን ዋሉ/አደሩ? ስሜ_____ይባላል፡ ፡ በደቡብአፍሪካ ዩኒቨርሲቲ የጤፍ ትምህርት ክፍል አስተባባሪነት ለጥናት የሚቀሳቀሰውን ቡድን የምወክል ስሆን በጥናቱም ወደ _____ ጤፍ ጣቢያ ለክትባት ክትትል ለሚሞኩእናቶች “የእናቶች እና የጨቅላ ህፃናት ሞትን ለመቀነስ ቀጣይነት ያለው የጤፍ እንክብካቤ ሞደል” ላይ ለሚከና ጥናት ቃለ ማኪይቅ አደርጋለሁ፡ ፡ እርስዎምበዚህ ጥናት ተሳታፊ እንዲሆኑ ተሞርጠዋል፡ ፡ ይህ ጥናት የሚካሄደው በቃለ-ማኪይቅ ሲሆን ፍቃደኛነትዎን በአክብሮት እጠይቃለሁ?

በቃለ-ማኪይቁ ላይ ስምአይጣፃብምእንዲሁምየሚሰጡት ሚጃ በሚስጥር ይያዛል፡ ፡ የሚጃው ጠቀሜታ ለዚሁ ጥናት ብቻ ይሆናል፡ ፡ ለሁሉም ተሳታፊ ማላያ ቁጠር እንጂ ስምአይፃፍም ፡ የጥናቱ ሪፖርት ለማታምቢፈለግ እንኳን የሁሉምተሳታፊ ሚጃ በተቀናበረ ሜልኩ እንጂ በግል አይቀርብም ፡ በቃለ-ማኪይቁ ወቅት የሚሰበሰቡትን ሚጃዎች የማከምሁኔታ በፈቃደኝነት ላይ የተማረተነው ፡ እርስዎምበዚህ ጥናት ውስጥ የማተፍ ያለማተፍ ወይምበማንኛውምወቅት ማኪይቁን የማቋረጥ ሞሉ ማበትዎ የተጠበቀ ሚሆኑን እናረጋግጣለን፡ ፡ በማተፍዎና እርስዎ በሚሰጡት ትክክለኛ ሚጃ የጥናቱን አላማለማሣካትና “የእናቶች እና የጨቅላ ህፃናት ሞትን ለመቀነስ ቀጣይነት ላለው ጤፍ እንክብካቤ የሚዘጋጀው ሞደል በተማላከተ ለሚቀረጉ እንቅስቃሴዎች ጉልህ የሆነ ሜፅ ይጫወታል፡ ፡ አሁንምበድጋሜፍቃደኝነዎትን እጠይቃለሁ?

የሚጃውዓላማውግልጽነው? 1. አዎን 2. አይደለም

በጥናቱ ላይ ለማተፍ ፈቃደኛነዎት? 1. አዎ 2. አይደለሁም

አማካግናለሁ፡ ፡ ተሣታፊውዋ ፈቃደኛ ከሆነ /ች ወደ ቃለ ማኪይቁ ይግቡ

ስለጥናቱ በቂ የሆነ ሚጃ ተሰጥቶኛል የጥናቱንም አላማበማ ባ ተረድቼዋለሁ፡ ፡ የተነ ገሩኝን ዝርዝሮች የተረዳሁ ሲሆን በጥናቱ ለማካፈል የሚያስፈልጉትን ቅድመ ሁኔ ታዎች ተገ ንዝቤያለሁ፡ ፡ እናምበጥናቱ ለማካፈል ፍቃደኛ ነኝ፡ ፡

የ ተሣታፊውዋ ፊርማ_____ ቀን _____

የ ቃለ ማኪይቅ አድራጊ ውፊርማ_____ ቀን _____

ማሣሠቢያ፡ - ግለሰቦች በማኪይቁ እንዲሳተፉ ለሚድረግ ምንም አይነት ጩና ማክገደጃ ሚድረግ አያስፈልግም ፡

ANNEXURE M: INTERVIEWER ADMINISTERED QUESTIONNAIRE FOR WOMEN (AMHARIC VERSION)

የ እና ቶች አ ሚ ኛ ማ ከ ይ ቅ

መ መ ሪ ያ ፡ ከ ተ ዘ ረ ዘ ሩ ት ም ር ጫ ዎ ች ሜ ል ስ የ ያ ዘ ዉ ን ቁ ጥ ር በ ማ ክ በ ብ እ ና ም ር ጫ ለ ሌ ላ ች ዉ ጥ ያ ቄ ዎ ች ክ ፍ ት ቦ ታ ዉ ን በ መ መ ላ ት ይ ሜ ል ሱ ።

ተ ቁ	ጥ ያ ቄ ዎ ች	ሜ ል ስ ማ ክ በ ብ ወ ይ ም በ ክ ፍ ት ቦ ታ ዉ መ ጻ ፍ	
	ክ ፍ ል 1 ፡ -ማ ህ በ ራ ዊ ነ ክ ሚ ጃ ዎ ች ን በ ተ መ ላ ከ ተ		
1	እ ድ ሜ	(_____) ዓ መ ት	
2	ሐ ይ ማ ኖ ት	1. አ ር ቶ ዶ ክ ስ ተ ዋ ህ ዶ 2. ማ ኅ ሊ ም 3. ፕ ሮ ቴ ስ ታ ን ት	4. ካ ቶ ሊ ክ 5. ሌ ላ ይ ግ ለ ፁ_____
3	የ ጋ ብ ቻ ሁ ኔ ታ	1. ያ ገ ባ ች 2. ሳ ይ ጋ ቡ አ ብ ረ ዉ የ ሞ ቱ 3. የ ፈ ታ ች	4. የ ሞ ተ ባ ት 5. ያ ላ ገ ባ ች 6. ተ ለ ያ ይ ተ ዉ የ ሞ ቱ
4	መ ጀ መ ሪ ያ በ ስ ን ት ዓ መ ት አ ሽ አ ገ ባ ሽ?	(_____) ዓ መ ት	
5	የ ት ም ህ ር ት ደ ረ ጃ	1. መ ደ በ ኛ ት ም ህ ር ት የ ሌ ላ ች ዉ 2. አ ን ደ ኛ ደ ረ ጃ (1-8)	3. ሁ ለ ተ ኛ ደ ረ ጃ (9-12) 4. ኮ ሌ ጅ እ ና ከ ዚ ያ በ ላ ይ
6	ብ ሄ ር	1. በ ር ታ 2. አ ሚ ራ 3. አ ሮ ሞ	4. ት ግ ሬ 5. ሌ ላ ካ ለ ይ ገ ለ ፅ _____
7	የ ስ ራ ሁ ኔ ታ	1. አ ር ሶ አ ደ ር 2. የ ቤ ት እ ማ ቤ ት 3. የ ግ ል/የ መ ን ግ ስ ት ተ ቀ ጣ ሪ / 4. ነ ጋ ዴ	5. ተ ማ ሪ 6. የ ቀ ን ሰ ራ ተ ኛ 7. ሌ ላ ይ ግ ለ ፁ---------
8	የ ት ዳ ር አ ጋ ር ስ ራ	1 አ ር ሶ አ ደ ር 2 የ ግ ል/የ መ ን ግ ስ ት ተ ቀ ጣ ሪ 3 ነ ጋ ዴ	4 ተ ማ ሪ 5 የ ቀ ን ሰ ራ ተ ኛ 6 ሌ ላ ይ ግ ለ ፁ---
9	የ መ ኖ ሪ ያ ቦ ታ	1. ከ ተ ማ	2. ገ ጠ ር
10	አ ማ ክ ኝ የ ወ ር ገ ቢ (በ ብ ር)	(_____) ብ ር	
	ከ ፍ ል 2 የ ቤ ተ ሰ ብ እ ና የ ማ ህ በ ረ ሰ ብ ሚ ጃ ዎ ች ን በ ተ መ ላ ከ ተ		
11	ያ ን ች ን እ ና የ ል ጅ ሽ ን ተ ከ ታ ታ ይ ነ ት ያ ለ ው ጤ ፍ እ ን ክ ብ ካ ቤ ለ ማ ግ ኘ ት በ ዋ ነ ኛ ነ ት የ መ ወ ሰ ን አ ድ ሉ ያ ለ ዉ ከ ቤ ተ ሰ ብ ዉ ስ ጥ ማ ነ ዉ? **(ካ ን ድ በ ላ ይ ማ ሚ ጥ ይ ቻ ላ ል)**	1. እ ኔ 2. ባ ለ ቤ ቴ 3. ሁ ለ ታ ች ን ም	4. ቤ ተ ሰ ብ 5. ጓ ደ ኛ 6. ዘ መ ድ
12	በ ዚ ህ ኛ ው ል ጅ ሽ ከ እ ር ግ ዝ ና ጀ ምሮ ተ ከ ታ ታ ይ ነ ት ያ ለ ው ጤ ፍ እ ን ክ ብ ካ ቤ ለ ማ ግ ኘ ት የ ት ዳ ር ወ ይ ም የ ቤ ተ ሰ ብ ድ ጋ ፍ የ ማ ግ ኘ ት አ ድ ሉ ነ በ ረ ሽ ወ ይ?	1. የ ለ ም 2. አ ዎ	
	ክ ፍ ል 3 የ ት ራ ን ስ ፖ ር ት አ ገ ል ግ ሎ ት ን በ ተ መ ላ ከ ተ		

1	ብዙ ጊዜ የሚከቀማት ጡፍ ጣቢያ በግምት ከቤትሽ ምን ያህል ሰዓት ይወስዳል?	1. (_____) ደቂቃ 2. (_____) ሰዓት	
2	ወደ ጡፍ ጣቢያ ወይምሆስፒታል በዋናነት የሚከቀማት የትራንስፖርት አገልግሎት ምንድን ነው?	1 በእግር 2 አንቡላስ 3 የህዝብ ማመላለሻ	4 ባህላዊ ዘዴ(ቃሬዛ) 5 ሌላ ካለ ይጡቅስ
3	በዚህ ልጅሽ የወሊድ ወቅት የአንቡላንስ አገልግሎት አግኝተሽ ነበር ወይ?	1. የለም 2. አዎ	
4	በተ.ቁ. 3 ሜልስሽ አዎ ከሆነ ለሞለድ ወደ ጡፍ ተቋም ሲትሄጅ ነው ወይስ ከወለድሽ በኃላ?	1 ከሞለዴበፊት (ከቤት ወደ ጡፍ ተቋምስሄድ) 2 ከወለድኩበኋላ (ከጡፍ ተቋምወደ ቤት ስመለስ) 3 ከቤት ወደ ጡፍ ተቋምእና ከጡፍ ተቋምወደ ቤት	
5	ወሊድን በተመለከተ ድንገተኛ ህመም ቢከሰት አምቡላንስ በቶሎ የመገኘት እድሉ ነበረሽ ወይ?	1. አዎ 2. የለኝም	
	ክፍል 4 በቤት ያሉ ሚጃዎችን በተመለከተ		
1	ለማጡጥ የሚከቀሙት ውሃ የምንድን ነው?	1. የቧንቧ 2. የጉድጓድ 3. ምንጭ	4. የወንዝ 5. ሌላ ካለ ይጡቀስ
2	ለማጡጥ የሚከቀሙትን ዉሃ ንጹህ እንዲሆን በአብዘሃኛውምን ያዳርጋሉ?	1. ምንም 2. ማጩላት 3. የውሃ አጋር ማጬሙር	4. ማጣራት 5. ሌላ ካለ ይጡቀስ
3	በአብዝሃኛው ቤተሰቡ የሚከቀሙው ሽንት ቤት ምን አይነት ነው?	1. ሜፔ ላይ ማጻዳዳት 2. ዘመናዊ ሽንት ቤት	3. ባህላዊ ሽንት ቤት 4. ሌላ ካለ ይገለጽ------
	ክፍል 5 የሚጃ፣ የትምህርት እና ተግባቦትን በተመለከተ		
1	ስነ እናቶች እና ጨቅላ ሕፃናት ተከታታይነት ያለው የጡፍ አገልግሎት ሚጃዎችን አግኝተሽ ታውቂያለሽ?	1. አዎ 2. የለም	
2	በተ.ቁ 1 ሜልስሽ አዎ ከሆነ ተከታታይነት ያለው የጡፍ አገልግሎት ሚጃዎችን ከየት አገኘሽ?	1. ከጡፍ ኤክስቴሽን 2. ከጡፍ ልማት ሰራዊት 3. ከጡፍ ባለሙያዎች 4. ከዘመድ	5. ከማህበረሰብአሙሮች 6. ከጎረቤት 7. ከሚዲያ 8. ከሌላ ካለ ይጡቀስ
3	በየስንት ጊዜው ሬድዎ ያዳምጣሉ ወይም ቴሌቪዥን ይመለከታሉ?	1. በየቀኑ 2. ቢያንስ በሳምንት 1ጊዜ	3. በሳምንት ከ1ጊዜ ያነሰ 4. አልከታተልም
	ክፍል 6 የጡፍ ተቋማት አገልግሎትን በተመለከተ		
1	የጡፍ ጣቢያዎችን ማሳረተ ልማት እንዴት ይገመግማል?	1. እጅግ በጣምጥሩ 2. በጣምጥሩ	3. ማጡነኛ 4. ዝቅተኛ
2	በጡፍ ተቋማት የሚሰጡዉን የጡፍ አገልግሎት እንዴት ይገመግማል?	1. እጅግ በጣምጥሩ 2. በጣምጥሩ	3. ማጡነኛ 4. ዝቅተኛ
3	በጡፍ ተቋማት የጡፍ ባለሙያዎችን የጡፍ አገልግሎት አሰጣጥ እንዴት ይገመግማል?	1. ባለጌ ናቸው 2. አዛኝ ናቸው	3. ተንከባካቢ ናቸው 4. እውቀተኞች ናቸው
4	ሁሉም ነገሮች ቢሟሉ፣ የእርግዝና ክትትል፣ ወሊድ እና ድህረ ወሊድ ክትትል የት ሞድረግ ትፈልጊአለሽ?	1. በቤት 2. በልምድ አዋላጆች 3. ሆሰፒታል	4. ጡፍ ኬላ 5. ጡፍ ጣቢያ
	ክፍል 7 በእናቶች እና ህፃናት ጡፍ ዙሪያ የእናቶችን እውቀት በተመለከተ		
1	በሁለት ተከታታይ ልጆች ማካከል የሞሮረውን በቂ የእድሜ ልዩነት ስንት እንደሆነ ሰምተውያውቃሉ?	1. አላውቅም 2. አውቃለሁ	
2	በተ.ቁ. 1 ሰምተውየሚያውቁ ከሆነ ስንት ዓመት ሚሆን አለበት ይላሉ?	1. ከሁለት ዓመት በታች 2. ከ2-5 ዓመት	3. ከ5 ዓመት በላይ 4. አላውቅም

3	አንዱ ልጅ ሳይጠነክር ፈጥኖ ሞቱልድ ምን የጤፍ ችግር በእናቲቱ እና በልጁ የሚያረውይሞክልዎታል? **(ጥያቄውን ሜልስ እንዳያነቡላቸው፤ ጥያቄዎችን ለይተው ያንብቡላቸው፣ ከአንድ ባለይ ሜልስ ይቻላል)**	**<u>በእናቲቱ ላይ</u>** 1. ምንምችግር የለውም 2. የደምማስ 3. የደምጭሰስ 4. ሞት 5. አላውቅም	**<u>በልጁ ላይ</u>** 1. ምንምችግር የለውም 2. ዝቅተኛ የሆነ ክብደት 3. ያለ እድሜሞቱለድ 4. ሞት 5. አላውቅም
4	ዘሞዊ የእርግዝና ሞላላከያ ለወንዶች ወይምለሴቶች ሞኖሩን ያውቃሉ?	1. አላውቅም 2. አውቃለሁ	3. እርግጡኛ አይደለሁም
5	ትክክልኛ የመጀሚያ የእርግዝና ክትትል ጊዜ ሜቼ ይሞክልዎታል?	1. በማንኛውምጊዜ 2. እርግዝና በተጀሚ አስከ 4 ወር 3. ከ5-6 ወር	ወሊድ በቀረበ ጊዜ 4. አላውቅም 5. ሌላ ካለ ይገለጽ
6	አንድ ነፍሰጡር እናት ለእርግዝና ክትትል ወደ ጤፍ ተቋም ቢያንስ ስንት ጊዜ ሜድየሚባት ይሞክልዎታል?	(_____) ጊዜ	
7	አንድ ነፍሰጡር እናት ለወሊድ ሞዘጋጀት ያስፈልጋታል?	1. አያስፈልጋትም 2. ያስፈልጋታል	3. አላውቅም
8	የጤፍ ባለሞያን እገዛ የሚሹ እና በእርግዝና፣ በወሊድ እና በድህረ ወሊድ ወቅት ሊከሰቱ የሚቹሉ የጤፍ ችግሮች ምን ምን እንደሆኑ ሊነግሩኝ ይችላሉ? **(አሚራቹን አያንብቡላቸው፣ <u>ጥያቄዎችን ለያይተው ያብቡቡላቸው፣</u> በእርግዝና፣ በወሊድ እና በድህረ ወሊድ አገልግሎት ወቅት ከአንድ በላይ አሚራጩይፈቀዳል)**	**በእርግዝና ወቅት** 1. ከፍተኛ የሆነ የእራስ ምታት እና ደምግፊት 2. የአይን ብዥታ እና ማነቀጥቀጥ 3. የጽንስ እንቅስቃሴ ሞቀነስ 4. የእጅ፤ የእግር እና የፊት እብጠት 5. የደምእና ውሃ ሞላል ፈሳሽ በብልት ሞፍሰስ **በምጥና ወሊድ ወቅት** 6. የተራዘመምጥ 7. ከፍተኛ የሆነ ደምሞፍሰስ 8. የእንግዴልጅ ሞዛግየት 9. ከፍተኛ የሆነ የሆድ ህማም 10. የሚህጸን ሞተርተር 11. የጽንስ ያለ አቅጣጩሞቀመጥ 12. የእትብት በህጻኑ አንገት ሞከምጠም 13. የጽንሱ ያለአቅጣጩመምጣት (በቂጥ፣ በእጅ፣ በእግር) **በድህረ ወሊድ ወቅት** 14. ከፍተኛ ትኩሳት 15. ሞጥፎ ጡረን ያለውፈሳሽ 16. አላውቅም	
9	የጨቅላ ህጻናት አደገኛ የጤፍ ምልክቶች የሚነሉት ምን ምን ናቸው? **(አሚራቹን አያንብቡላቸው፣ ከአንድ ባለይ አሚራቹ ይፈቃሉ)**	1. ጡቱ አለሞጥባት 2. ትኩሳት 3. ፈጣን የሆነ አተነፋፈስ 4. ለሞተንፈስ ሞቸገር 5. ድብርት፣ ንቃተ ህሌና ማጣት ወይምሞድከም	6. ሞቁዝቀዝ 7. ሞነቀጥቀጥ/ምነዘፍዘፍ 8. የእንብርት ሞቅላት 9. ቢጫሚሆን 10. ሞነታወክ 11. ሌላ ካለ ይጠቀስ
	ክፍል 8 የቅድመወሊደ ፣ እርግዝና፣ ወሊድ እና ድህረ ወሊድ ሞከይቆች		
1	ስንት ጊዜ አርግዘሽ ነበር?	(_____)ጊዜ	
2	በህይወት ያሉ ስንት ልጆች አሉሽ?	(_____) በህይወት ያሉ ልጆች	
3	በሜጩረሻው እና ከሱ ታላቅ በሆነው ሞካከል ያለውየእድሜልዩነት ስንት ወር ነው?	(_____) (በወር)	
4	ስንት ልጆች እንድኖሩሽ ትፈልጊአለሽ?	(_____ __)ልጆች	
5	ከዚህ ልጅሽ በፊት ከእርግዝና ወይምከወሊድ ጋር በተያያዘ የሚከተሉት የጤፍ ችግሮች ተከስተውብሽ ነበር?		
	ያል እድሜየ ተወለደ ህጻን	1. የለም	2. አለ
	ከሞወለዱ በፊት የሞተ ህጻን	1. የለም	2. አለ
	እንደተወለደ/ች የሞተ/ች ህጻን	1. የለም	2. አለ

	ውርጃ	1. የለም	1. አለ
	ክብደቱ ዝቅተኛ የሆነ ህጻን	1. የለም	1. አለ
	በቀዶ ጥገና የተከናወነ ወሊድ	1. የለም	1. አለ
6	በፊት በነበረው እርግዝና/ወሊድሽ የተወሳሰበ የጡፍ ችግር ገጥሞሽ ነበር?	1. የለም	2. አዎ
7	በተ.ቁ.6 ሜልስዎ አዎ ከሆነ የትኛው አይነት አይነት የተወሳሰበ ችግር ነበር የገጠመሽ? **(አሚራጮችን አያንብቡ፤ ከአንድ በላይ ሜልስ ይቻላል)**	1. የደምጭሰስ 2. በብልት ፈሳሽ ሞፍሰስ 3. ከፍተኛ የሆነ ራስ ምታት 4. የአይን ብዥታ 5. ግፊት 6. ደምማ ስ	7. ትኩሳት 8. የሆድ ህመም 9. ማንቀጥቀጥ 10. ሌላ ካለ ይጠቀስ
8	የሜጩፈሻውን እርግዝና ለማዝግየት ወይም ላለመውለድ የእርግዝና መከላከያ ወስደሽ ነበር?	1. የለም	2. ወስጃለሁ
9	የሜጩፈሻውን እርግዝና ፈልገሽ ነው ያረገዝሽው	1. አይደለም	2. አዎ
10	በተ.ቁ 9 ላይ ሜልስሽ አይደለም ከሆነ ያረገዝሽበት ምክንያት ምንድን ነበር? **(አሚራጮችን አያንብቡላቸው፣ ከአንድ ባለይ ሜልስ ይቻላል)**	1. የግንዛቤ እጥረት ሞር 2. የቤተሰብ እቅድ አገልግሎት የጎንዮሽ ጉዳትን በመፍራት 3. የባለቤቴ ፍቃድ ስለሆነ ብቻ	4. በወቅቱ እያጠባሁ ስለሆነ 5. ሌላ ካለ ይጠቀስ
	1. የእርግዝና ክትትልን በተመለከተ		
11	በዚህኛውእርግዝናሽ የእርግዝና ክትትል አድርገሽ ነበር?	1. የለም	2. አዎ
12	በተ.ቁ 11 ሜልሱ አላደረኩም ከሆነ የእርግዝና ክትትል እንዳታደርጊ ምክንያቱ ምንድን ነበር? **(አሚራጮች እንዳያነቡ፣ ከአንድ ባለይ ሜልስ ይቻላል)**	1. የት እንደምሄድ አላውቅምነበር 2. ክትትል ሞድረግ አስፈላጊ አይደለም 3. በቤተሰብ እንክብካቤ ምክንያት ጊዜ አልነበረኝም 4. ባለቤቴ/ ቤተሰቦቼ ፍቃደኛ ባለሞሆናቸው	5. ጡፍ ተቋሞሩቅ ስለሆነ 6. አገልግሎቱ ጥራት ስለሌለው 7. ሴት የጡፍ ባለሞያዎች ስለሌሉ 8. ጡፅ ኛ ስለነበርኩ 9. ሌላ ካለ ይገለጽ---
13	የመጀሞሪያውን የቅድመ ወሊድ እርግዝና ክትትል በስንት ወር እርግዝናሽ ጀሞሽ?	1. ---------- ወር	2. አላስታውስም
14	ከሞለድሽ በፊት ስንት ጊዜ ቅድሞሊድ ክትትል አደረግሽ?	1. ----------ጊዜ	2. አላስታውስም
15	አራተኛውን ቅድሞሊድ ክትትል አድርገሻል?	1. አላደረኩም	2. አዎ
16	የሜጩፈሻውን የእርዝና ክትትል የት አደረግሽ? **(አንድ ብቻ ሜልስ ይምረጡ)**	1. ሆሰፒታል 2. ጡፍ ጣቢያ 3. ጡፍ ኬላ	4. የግል ክሊኒክ 5. ቤት
17	በሞንኛውም የቅድመ ወሊድ የእርግዝና ክትትል ስለ አደገኛ ምልክቶች በጡፍ ባለሞያ ተነግሮሻል?	1. አልተነገረኝም	2. ተነግሮኛል
18	በቅድመወሊድ የእርግዝና ክትትል ወቅት ስለወሊድ ዝግጅት ምክር በጡፍ ባለሞያ ተሰጥቶሻል?	1. የለም	2. አዎ
19	የመጋጋ ቆልፍ ክትባት ስንት ጊዜ ወሰድሽ?	1. (_____) ጊዜ	2. አላስታውስም
20	የደም ሞስ ሞድሃኒት ለስንት ቀን ወሰድሽ?	1. (_____) ቀን	2. አላስታውስም
21	በዚህኛውእርግዝናሽ ወቅት ከሚከተሉት ውስጥ ቢያንስ አንድ ጊዜ በጡፍ ባለሞያ ምርሞራ ተደርጎልሻል?		
	ክብደት መሞዝን	1. አዎ	2. የለም
	የደምግፊት ሞለካት	1. አዎ	2. የለም
	የሽንት ምርሞራ	1. አዎ	2. የለም

	የድንሱን እድገት ክትትል	1. አዎ	2. የለም	
	የቂጥኝ ምርመራ	1. አዎ	2. የለም	
	ስለ አመጋገብ ምክር	1. አዎ	2. የለም	
	ኤች አይ ቪ ምርመራ	1. አዎ	2. የለም	
	ስለቤተሰብ እቅድ አገልገልት ምክር	1. አዎ	2. የለም	
	ስለ ጡፍ ተቋማት ወሊድ እና ደህረ ወሊድ ክትትል ማድረግ ጥቅም	1. አዎ	2. የለም	
	የወባ ምርመራ፣ ስለ በሽታው ጉዳት እና መካላከያ ዘዴዎች (አጎበር አጠቃቀም)	1. አዎ	2. የለም	
	ስለ ሄፓታይተስ ምርመራ	1. አዎ	2. የለም	
	2. ስለምጥ እና ወሊድ አገልግሎት በተመለከተ			
22	ይህ ህጻን በስንተኛ ወር እርግዝሽ ነው የተወለደው/ችው?	(_____) ወር	አላውቅም	
23	የት ወለድሽ?	1. ሆስፒታል 2. ጡፍ ጣቢያ	3. ጡፍ ኬላ 4. ቤት	
24	በጡፍ ተቋምያልወለድሽበት ምክንያት? **(አሜራጮች አንዳይነበቡ፣ ከአንድ በላይ ሜልሶች ይቻላል፣ <u>ይሄ ጥያቄ በቤት ለወለደች እናት ብቻ የሚከየቅ ነው)</u>**	1. ከገንዛቤ እጥረት አንጻር 2. በድንገት ምጥ ስለጫካ 3. ባለቤቴ/ቤተሰቦቼ ስለተቃወሙ 4. በልምድ አዋላጅ መውለድ ስለሚቸኝ 5. የገንዘብ እጥረት ስላለ 6. ጡፍ ተቋሙሩቅ ስለሆነ 7. ትራንስፖርት ስለሌለ 8. ቤተሰብን ስምንከባከብ ጊዜ ስለለለኝ 9. የሚሰጡው አገልግሎት ጥራት ስለሌለው 10. ከወሊድ በኋላ ብዙ ጊዜ ስለምቆይ	11. በጡፍ ተቋማት እምነት ስለሌለኝ 12. የሞዋለጃ መሳሪያዎች ስለሌሉ 13. የመድኃኒት እጥረት ስላለ 14. የጓደኛ ተጽዕኖ ሞር 15. በበፊት ወሊድ ወቅት ተጽዕኖ ስለደረሰብኝ 16. ባሜዎች በክብር ስለሚያስተናግዱ 17. ቀዶ ጥገና በጫራት 18. ተቋሙዝግ ስለሆነ 19. ሌላ ካለ ይገለጽ------	
25	ይህን/ይችን ልጅ በምንድን ነው የወለድሽው?	1. በድንገተኛ ምጥ 2. በባለሜያ የታገዘ ወሊድ	3. በቀዶ ጥገና	
26	አንቺ ወይም ቤተሰብሽ ከወሊድ ጋር በተያያዘ ነገር ክፍያ ከፍላችኋል?	1. የለም	2. አዎ	
27	በምጥ እና በወሊድ አገልግሎት ጊዜ ከዚህ በታች የተዘረዘሩት አገልግሎቶች ቢያንስ አንድ ጊዜ ተደርገውልሻል?			
	ባለሜያዎቹ የማክበር ሰላምታ ሰጥተውሻል?	1. የለም	2. አዎ	3. አላስታውስም
	አስፈላጊውን የግል ምስጢር ጠብቀውልሻል?	1. የለም	2. አዎ	3. አላስታውስም
	ከቤተሰብ አካል የምትፈልጊውን ሰው አብሮሽ አንድሆን ፈቅደውልሻል?	1. የለም	2. አዎ	3. አላስታውስም
	በምጥ ጊዜ ምግብ ወይም ማጠጥ እንድትወስጅ ባለሜያዎች ያበረታቱሽ ነበር?	1. የለም	2. አዎ	3. አላስታውስም
	በሚቸሽ የሰውነት ክፍል እንድትተኚ ይፈቅዱሽ ነበር?	1. የለም	2. አዎ	3. አላስታውስም
	በአጠቃላይ እንክብካቤአቸው ርህራሄ የተሞላበት ነበር	1. የለም	2. አዎ	3. አላስታውስም
28	ወደፊት አሁን በወለድሽበት ጡፍ ጡቋም የሚወለድ ፍላጎት አለሽ?	1. የለም	2. አዎ	

29	በወሊድ ጊዜ ወይም ከወለድሽ በኋላ በአንቺ ወይም በልጅሽ ድንገተኛ የጡፍ እክል ገጥሟሁ ነበር?	1. የለም	2. አዎ
30	በተ.ቁ 29 ድንገተኛ የሆነ የጡፍ እክል ገጥሞኽ ከሆነ በጡፍ ተቋሙ የህይወት አድን ስራዎች ተሰርተውልሻል?	1. የለም	2. አዎ
31	በተ.ቁ 29 ሜልሱ አልተደረገልኝም ከሆነ ምክንያቱ ምንድን ነበር? **(ከአንድ በላይ ምልስ ይቻላል፤ አሚራጭ ሜልሶች እንዳይነ ብብ)**	1. የሰለጠነ ባለሙያ ባለሞሩ 2. አስፈላጊ መድሃኒቶች ባለሞራቹው 3. አስፈላጊ የህክምና መሳሪያዎች ባለሞሩ	4. የትራንስፖርት አገልግሎት ወደ ሌላ ሆስፒታል ባለሞሩ 5. ሌላ ካለ ይገለጽ------
32	በምጥ እና በወሊድ ወቅት ስላለውየ ጡፍ ተቋማን አገልግሎት የእርካታ ደረጃሽ ምን ይመስላል?		
	የባለሙያዎች አቀራረብ	1. አርክቻለሁ	2. መውሰን አልችልም 3. አረካሁም
	የቆይታውጊዜ	1. አርክቻለሁ	2. መውሰን አልችልም 3. አረካሁም
	ሚስጥረን ከማከበቅ አንጻር	1. አርክቻለሁ	2. መውሰን አልችልም 3. አረካሁም
	በአገልግሎት ክፍያ	1. አርክቻለሁ	2. መውሰን አልችልም 3. አረካሁም
	የአገልግሎት ጥራት	1. አርክቻለሁ	2. መውሰን አልችልም 3. አረካሁም
	የባለሙያዎች ክህሎት ሁኔታ	1. አርክቻለሁ	2. መውሰን አልችልም 3. አረካሁም
	3. ድህረ ወሊድ እና የጨቅላ ህጻናት አገልግሎትን በተመለከተ		
33	ይሄን ልጅሽን ከወለድሽ በኋላ የድህረ ወሊድ ክትትል አድርገሻል?	1. የለም 2. አዎ	
34	በተ.ቁ. 33 ሜልስዎ አዎ ከሆነ መቼ አደረግሽ? **(ከአንድ በላይ ሜልስ ይቻላል)**	1. በ24 ሰዓት ውስጥ 2. ከ25-48 ሰዓት ባለውጊዜ 3. ከ49-72 ሰዓት ባለውጊዜ	4. ከ73 ሰዓት አስከ 6 ሳምንታት 5. >6 ሳመንታት
35	የድህረ ወሊድ ክትትል የት አደረግሽ?	1. በቤት 2. ጡፍ ኬላ 3. ጡፍ ጣቢያ	4. ሆሰፒታል 5. የግል ክሊኒክ
36	ምን ምን የድህረ ወሊድ አገልግሎቶች አገኘሽ? **(አሚራጮች እንዳይነ በቡ፣ ከአንድ በላይ ሜልስ ይቻላል)**	1. በብልት የሚወጣ ፈሻሽ ሞር አለሞሩን 2. ስለ ጡት አጠባብዘዴ 3. ስለ አደገኛ ምልክቶች ሚጃ	4. ስለ ምግብአመጋገብዘዴ 5. ስለ ቤተሰብእቅድ ሁኔታ 6. ስለክትትል ቀናት ቀጠሮ 7. ሌላ ካለ ይገለጽ------
37	በተ.ቁ 33 ሜልሱ አዎ ከሆነ በጡፍ ተቋም የድህረ ወሊድ አገልገሎት ለሚድረግ ምን አነሳሳሽ? **(አሚራጮች እንዳይነ በቡ፣ ከአንድ በላይ ሜልስ ይቻላል)**	1. ስለታመሙኩ 2. ልጄስለታመመ 3. የእኔን እና የልጄን ሁኔታ ለሚወቅ 4. ለህጻኑ ክትባት 5. የቤተሰብ እቅድ አገልግሎት ለመውሰድ	6. ስለጡት አጠባብ ምክር ለመውሰድ 7. የደም ማነስ ምርመራ ለሚድረግ 8. ስለ አደገኛ ምልክቶች ሚጃ ለማኘት 9. ሌላ ካለ ይጠቀስ------
38	በተ.ቁ 33 የድህረ ወሊድ ክትትል ካላደረግሽ ያላደረግሽበት ምክንያት ምንድን ነው? **(አሚራጮች እንዳይነ በቡ፣ ከአንድ በላይ ሜልስ ይቻላል)**	1. አስፈላጊ ማነሎስላልታዬኝ 2. የአርባ ቀን በቤት የሚቆየት ህግ ስለሚ ድበኝ 3. የሚያግዘኝ ሰውስለሌለ 4. ባለቤቴ/ቤተሰቦቼ/ ጤቃሚ እንዳልሆነ ስለሚ ምቱ 5. ጡፍ ተቋሙሩቅ ስለሆነ 6. የትራንስፖርት አገልግሎት ስለሌለ 7. የአገልግሎት ጥራቱ ዝቅተኛ ስለማለኝ 8. የአገልግሎት ዋጋው ከፍተኛ ስለሆነ	9. ባለቤቴ/ቤተሰቦቼ ስለሚይፈቅዱልኝ 10. ምንምህመስለሌለኝ 11. የጡፍ ባለሙያዎች ዝቅተኛ ክብር ስለሚነጡ 12. ከዚህ በፊት በጡፍ ተቋሙ ችግር ገጥሞኝ ስለነበር 13. የጓደኛ ተጽዕኖ ሞሩ 14. በተቋሙ አገልግሎት ስለማእምን 15. ሌላ ካለ ይገለጽ---
39	ከወለድሽ በኋላ በጡፍ ተቋሙስንት ሰዓት ቆየሽ?	(_____) ሰዓት	

40	ከወለድሽ በኋላ ከጡፍ ጡቋሙከሞጡትሽ በፊት ስለ አንቺ እና ስለ ህጻኑ የሞሚ ሚሽ ባለሞያ ነበር?	1. የለም 2. አለ	3. አላስታውስም
41	ወልደሽ ከጡፍ ተቋሙ ወደቤት ከሄድሽ በኋላ ስለ አንቺ እና ስለ ህጻኑ ጡፍ ክትትል ያደረገልሽ ማን ው?	1. ጡፍ ኤክስቴሽን 2. አዋላጅ ነርስ	3. ዶክተር 4. የልሞኑ ቡድን ሚ 5. የለም
	4. የጨቅላ ህጻን አገልግሎት በተመለከተ		
42	ሲወለድ የህጻኑ/ኗ ክብደት ስንት ነበር?	1. (_____) ኪ.ግ	2. አላውቅም
43	ህጻኑ ሲወለድ የጡፍው ሁኔታ እንደት ነበር?	1. ጤኛ 2. የተወሳሰበ የጡፍ ቸግር ያለው	3. ያለ እድሜውየተወለዴ 4. ሌላ ካለ ይገለጽ
44	ከወለድሽ በኋላ በምን ያክል ጊዜ ጡት አጠባሽው?	1. ወዲያውኑ 2. በ30 ደቂቃ - 1 ሰዓት ውስጥ	3. በ2-4 ሰዓት 4. በሶስተኛ ቀኑ 5. ሌላ ካለ ይገለጽ
45	ለህጻኑ ስድስት ወር ሳይሞላው ፈሳሽ ነገር ሰጥተሽዋል?	1. የለም	2. አዎ
46	በተ.ቁ 48 ሜልሱ አዎ ከሆነ ምን ሰጠሽው/ሰጠሻት?	1. የላምወተት 2. ዉሃ	3. ቅቤ 4. ሌላ ካለ ይጠቀስ
47	በቀን ህጻኑን/ኗን ስንት ጊዜ ታጠቢያለሽ?	(_____) ጊዜ	
48	ለመጀመሪያ ጊዜ ህጻኑን/ኗን ሞቼ ነው ገላውን/ዋን ያጠሽው/ሻት?	1. ወድያውእንደተወለዴ/ች 2. ከተወለዴ/ች ከ1-2 ሰዓት ባለውጊዜ 3. ከተወለዴ/ች ከ3-4 ሰዓት ባለውጊዜ	4. ከተወለዴ/ች ከ5-6 ሰዓት 5. ከተወለዴ/ች ከ7 ሰዓት በኋላ 6. ሌላ ካለ ይጠቀስ----
49	ህጻኑን/ኗን እንደተወለዴ/ች ምን ተደረገለት/ላት?	1. የአይን ጡብታ 2. የምክራች ቅባት እብርቱ ላይ ተደረገለት/ላት	3. አላውቅም
50	ህጻኑን/ኗን እንደተወለዴ/ች ክትባት ተከተበ/ች?	1. የለም	2. አዎ
51	በተ.ቁ. 51 ተከትቧል/ባለች ከሆነ ምን ክተባት ነውየተከተበ/በች?	1. ፖሊዮ 2. ቢሲጂ	3. አላውቅም
52	በተ.ቁ. 51 አልተከትበምችም ከሆነ ምክንያቱ ምንድን ነው?	1. ክትባት ስለሌለ 2. ሰዓቱ ስለሜይሞች 3. ፍቃደኛ ስላልሆንኩ	4. የባለሞያ እጥረት ስላለ 5. ሌላ ካለ ይጠቀስ
53	ህጻኑን/ኗን ከተወለደ/ች በኋላ በ1 ወር ታሟማነበር?	1. የለም	2. አዎ
54	በተ.ቁ 54 ሜልሱ አዎ ከሆነ የታመመው/ችው ምን ነበር?	1. የሙንፈስ ቸግር 2. ቢጫሰውነ ት 3. አይጠባምነበር	4. ትኩሳት 5. ሌላ ካለ ይገለጽ---
55	ህጻኑን/ኗን አንድሻላት ምን አደረግሽ? **(ይሄ ጥያቄ ለታመመ ህጻን ብቻ የሚከየቅ ነው)**	1. ምንም 2. የባህላዊ ሞድሃኒት ሰጠሁት	3. ወደ ጡፍ ተቋምወሰዲኩት 4. ሌላ ካለ ይገለጽ--------
56	**5. ከወሊድ በኋላ ስላለውየቤተሰብ አቅድ**		
	ከወለድሽ በኋላ የወር አበባሽ ሞቼ ማጣ?	(_____) ወር	
57	ከወለድሽ በኋላ በስንተኛው ቀን የግብረ ስጋ ግንኙነት ጀሚሽ?	1. አልጀሚኩም 2. በሰባተኛውቀን 3. 8-14 ቀን ባለው	4. 15-42 ቀን ባለው 5. ከ 42 ቀን በኋላ 6. ሌላ ካለ---
58	አሁን እያጠባሽ ነው?	1. የለም	2. አዎ
59	ከወለድሽ በኋላ ስለቤተሰብ እቅድ ምክር ተሰጥቶሻል?	1. የለም	2. አዎ
60	ከወለድሽ በኋላ አንቺ/ባለቤትሽ የእርግዝና ሞከላከያ ወድያውኑ ወስደሻል?	1. የለም	2. አዎ

61	በተ. ቁ 61 አዎ ከሆነ አንቺ ወይም ባለቤትሽ ምን እየወሰዳችሁ ነው? **(ከአንድ ባለይ ሜልስ ይቸላል)**	1. የ ሚህጻን ማስቋጠር 2. የ ወንድ ብልት ማስቋጠር 3. ሉፕ 4. ኮንዶም	5. ድፖ 6. ኢንፕላኖል/ጃድል 7. ክኒን/ፒልስ 8. ሌላ ካለ ይጠቀስ
62	በተ. ቁ 61 አይደለም ከሆነ ምክንያቱ ምንድን ነው? **(ከአንድ ባለይ ሞኩቀስ ይቸላል)**	1. ብዙ ልጆች ስለሚፈልግ 2. የ ሚገዝ አጋጥሚው ዝቅተኛ ስለሆነ 3. የ ወር አበባ ስላልማጣ	4. ባለቤቴ በቅርብ ስለሌለ 5. ባለቤቴ ስለሚይፈቅድልኝ 6. ሌላ ካለ ይጠቀስ-----
63	ባለቤትሽ የ ቤተሰብ እቅድ አገልግሎት እንድትጠቀሚይደግፍሻል?	1. የ ለም	2. አዎ
64	በተ.ቁ 63 ሜልሱ አዎ ከሆነ በምን ይደግፍሻል? **(ከአንድ ባለይ ሞኩቀስ ይቸላል)**	1. ለራሱ በ ሞውሰድ 2. የ ትራንስፖርት ብር በ ማስጠት 3. የ ቀጠሮ ቀን በ ማስታወስ	4. ከንዶምበ ማጠቀም 5. ሌላ ካለ ይጠቀስ-----
65	በአሁኑ ሰዓት ነፍሰጠር ነሽ?	1. የ ለም 2. አዎ	3. አላውቅም
66	የ እናቶች እና የ ህናት ተክታታይነት ያለው ጡፍ ክትትል በ ምታድርጊበት ጊዜ ከ ሚህበረሰቡ ምን ድጋፍ አገኘሽ? **(አ ሚራጭ ሜልሶችን እንዳያነቡላቸው፤ ከአንድ በላይ ሜልስ ይቻላል)**	1. አበረታትተውኛል 2. ምክር ሰጥተውኛል 3. ወደ ጡፍ ተቋም እንድወልድ ድጋፍ አድርገውልኛል 4. የ ትራንስፖርት ብር ሰጥተውኛል 5. አብረውኝ ጡፍ ተቋምሂደዋል 6. ከወለድኩ በኋላ ምጣብ በ ማምጣት ተንከባክበውኛል	7. የ ልማት ቡድን ሚሪዋ በየጊዜው ቤት በ ምጣት ስለ እናትነት እና ልጅ የ ጡፍ ምክር ሰጥታኛለች 8. የ ወለዱ እና ነፍሰጠር የ ሆኑ እናቶች የ ልምድ ልውውጥ አድርገውልኛል 9. ሌላ ካለ ይገለጽ----------
67	የ እናቶች እና የ ህጻናት ተክታታይነት ያለውጡፍ ሁንታ ልማሻሻል በጡፍ ተቋማት ምን ሞድረግ አለበት ብለውያስባሉ? **(አ ሚራጭ ሜልሶችን እንዳያነቡላቸው፤ ከአንድ በላይ ሜልስ ይቻላል)**	1. ጡፍ ተቋማት የ ሞድሃኒት እና የ ህክምና ማሳሪያዎች እጥረትን ማቅረፍ ቢችሉ 2. የ አንቡላንስ አገልግሎት መሟላት ቢችል 3. የ አግልግሎት አሰጣጥ ጥራት ማሻሻል ቢችል 4. የ ጡፍ ተቋማት ንጽህና ማሻሻል ቢችል 5. ጡፍ ተቋማት ሁልጊዜ ክፍት ሚሆን ቢችሉ	6. ሪፈር ተደርገን የ ሞሮረው እንግልት ቢቀንስ 7. ባለ ሞያዎች ሁሉንም በእኩል ቢያስተናግዱ 8. ጡፍ ተቋማት ምቹ ቢሆኑ 9. ባ ሞያዎቹ በርህራሄ ቢያገለግሉ 10. ሌላ ካለ ይገልጽ----------
68	ለወደፊት ለ ሞወለድ ብታቅጅ ሁሉንም ዓይነት ተከታታይነት ያለው ክትትል አደርጋለሁ ብለሽ ታስቢአለሽ?	1. የ ለም 2. አዎ	3. አላውቅም
69	በተ.ቁ 69 አዎ ከሆነ ምክንያቶሽ ምን ምን ሊሆኑ ይችላሉ? **(አ ሚራጭ ሜልሶችን እንዳያነቡላቸው፤ ከአንድ በላይ ሜልስ ይቻላል)**	1. የ ራሴን እና የ ልጀን ጤንነት ለ ማጠበቅ 2. የ ቅድመጥንቃቄ ለ ሞድረግ 3. ከዚህ በፊት አደገኛ የ ጡፍ ችግሮች ስተከሰቱ ቀድሞለ ማላከል 4. የ ህጻኑን እድገት ለ ማታተል	5. የ ሚያስፈልጉ የ ጡፍ ምርሙራ አገልግሎቶች ለ ማገኘት 6. የ ደም ጫሰስን ለ ማላከል 7. ሌላ ካለ ቢገለጽ----------

ANNEXURE N: INDIVIDUAL IN-DEPTH INTERVIEW FOR WOMEN (AMHARIC VERSION)

ለእናቶች የተዘጋጀ ማከይቅ

መመሪያ፡ ከተዘረዘሩት ምርጫዎች ሜልስ የያዘዉን ቁጥር በማክበብ እና ምርጫለሌላቸዉ ጥያቄዎች ክፍት ቦታዉን በመሞላት ይሜልሱ። ይህ ማከይቅ በድምጽ መቅረጽ ጭምር የሚከናወን ነው ፡

ተ.ቁ	ጥያቄዎች	ሜልስ	
1	የሚነጥር ቁጥር	(_____)	
2	የቀበሌውማኛ	1. ገጠር 2. ከተማ	
3	የተጠያቂዋ እድሜ	(_____) ዓመት	
4	የተጠያቂዋ ሐይማኖት	1. ኦርቶዶክስ ተዋህዶ 2. ሙስሊም 3. ፕሮቴስታንት	4. ካቶሊክ 5. ሌላይግለፁ_____
5	የተጠያቂዋ የትምህርት ደረጃ	1. መደበኛ ትምህርት የሌላቸዉ 2. አንደኛ ደረጃ(1-8)	3. ሁለተኛ ደረጃ (9-12) 4. ኮሌጅ እና ከዚያ በላይ
6	የተጠያቂዋ የስራ ሁኔታ	1. አርሶ አደር 2. የቤት እማኬት 3. የግል/የመንግስት ተቀጣሪ/ 4. ነጋዴ	5. ተማሪ 6. የቀንሰ ራተኛ 7. ሌላይግለፁ---------
7	ለቀበሌው ዋና የትራንስፖርት ዓይነት ምንድን ነው?	ሆስፒታል	1. በእግር 2. በአህያ/በቅሎ 3. ሚኪና/ባጃጅ/አንቡላንስ 4. ሌላ ካለ ይገለጽ
		ጤፍ ጣቢያ	1. በእግር 2. በአህያ/በቅሎ 3. ሚኪና/ባጃጅ/አንቡላንስ 4. ሌላ ካለ ይገለጽ
		ጤፍ ኬላ	1. በእግር 2. በአህያ/በቅሎ 3. ሚኪና/ባጃጅ/አንቡላንስ 4. ሌላ ካለ ይገለጽ
8	የመንገዱን ሁኔታ እንደት ይገመግሙታል	1. ምቹነው 2. ምቹ አይደለም	
9	ጤፍ ጣቢያዉሆስፒታሉ ከቀበሌው በአማኝ ምን ያክል ይርቃል	1. ቅርብነው 2. ማከለኛነው 3. ሩቅነው	
10	በወሊድ ወቅት የቀበሌአችሁ ሁሉም እናቶች የአንቡላንስ አገልግሎት አግኝተውያውቃሉ?	1. የለም 2. አዎ	
11	በተ.ቁ 11 ሜልስዎ አዎ ከሆነ ለመዉለድ ወደ ጤፍ ተቋምሲትሄዱ ነውወይስ ከወለዱበታላ?	4 ከወለድኩበፊት (ከቤት ወደ ጤፍ ተቋም) 5 ከወለድኩበኋላ (ከጤፍ ተቋምወደ ቤት) 3. ከቤት ወደ ጤፍ ተቋምእና ከጤፍ ተቋምወደ ቤት	

13. በጤፍ ተቋማት ስለሚሰጡውተከታታይነት ያለውየእናቶች እና ጨቅላ ህጻናት የጤፍ አገልግሎት ምን ግንዛቤ አለዎት?

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14. ተከታታይነት ያለውየእናቶች እና ጨቅላ ህጻናት የጡት አገልግሎትን ለምን ተጠቀምሽ?

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15. ተከታታይነት ያለው የእናቶች እና የጨቅላ ህጻናት የጡት አገልግሎትን እንዳትወስጅ የሚያደርጉ ምክንያቶች ምን ምን ነበሩ? **(ከገንዘቤ እጥረት አንጻር፣ ቅድመ ዝግጅት ባለመኖሩ፣ የጡት ተቋሙአገልግሎት ጥሩ ስላልሆነ ፣ በጡት ተቋማት እምነት ስለሌላቸው፣ ድንገት ምጥ ስለመጣ፣ የቤተሰብ ድጋፍ ስለሚይኖራቸው፣ በልምድ አዋላጅ መውለድ ስለሚፈልጉ፣ የገንዘብ እጥረት ስላላቸው፣ ጡት ተቋሙ ሩቅ ስለሆነ ፣ ትራንስፖርት ስለሌለ፣ የጊዜ እጥረት፣ ስላለባቸው፣ ከወሊድ በኋላ ብዙ ጊዜ ስለምቆዩ፣ የማለጀ መሳሪያዎች ስለሌሉ፣ የመድኃኒት እጥረት ስላለ፣ የጓደኛ ተጽዕኖ ሞር፣ እንግልት ስለሚርስባቸው፣ ባማያዎች በክብር ስለሚስተናግዱ፣ ቀዶ ጥገና በመፍራት፣ ተቋሙዝግ ስለሆነ ፣ እናቶች እርግዝናን ስለሚዉቁ)**

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16. ተከታታይነት ያለውየእናቶች እና ጨቅላ ህጻናት የጡት አገልግሎት (ቅድመወሊድ፣ ቅድመ ወሊድ የእርግዝና ክትትል፣ ወሊድ እና ድህረ ወሊድ ክትትል) ከሰለጠነ የጡት ባለሙያ በሚገኙት አገልግሎት እርካታዎ ምን ይመስል ነበር?

1. በጣምረክቻለሁ
2. በመጠኑ እርካታ ነበረኝ
3. የእርካታ ደረጃውን መግመት አልችልም
4. እርካታ የለኝም

17. ያለሚካታትሽ ምክንያት ምን ሊሆን ይችላል?

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18. ተከታታይነት ያለውየእናቶች እና የጨቅላ ህጻናት የጡት አገልግሎትን የጥራት ሁኔታ እንደት ትገምቻዋለሽ?

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19. እናቶች እና ጨቅላ ህጻናት ተከታታይነት ያለውየጡት አገልግሎት እንድታገኚ የቀበሌው፣ የልማት ቡደኑ፣ የሃይማኖት አባቶች ምን ድጋፍ አደረጉልሽ? **(የአካባቢውን ማህበረሰብ በማነቃቃት የገንዘብ ድጋፍ ማድረግ፣ የትራንስፖርት፣ አገልግሎት ማመቻቸት፣ ቅድመ ዝግጅት፣ እንድያደረጉ፣ ምክር ማነጽት፣ ስለ ጡት ተቋሙሁኔታ ምክር ማነጽት፣ አጎበር እንድጠቀሙ ክትትል ማድረግ፣ የነፍሰጡር ውይይት እንድካሄድ ድጋፍ ማድረግ፣ በጡት ኤክስቴንሽኖች ቤት ለቤት ምክር እንድሠጥ ክትትል ማድረግ፣ አገልግሎቱን እንድያገኙ ድጋፍ ማድረግ፣ በልማት ቡድን ተጠሪዎች አማካኝነት ድጋፍ ማድረግ፣ በቤት እንዳይወልዱ ቅጣት ማነቀጫጭ)**

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ANNEXURE O: INDIVIDUAL IN-DEPTH INTERVIEW KEBELE LEADERS, HEALTH DEVELOPMENT LEADERS, RELIGIOUS LEADERS, HEW AND HEALTH WORKERS (AMHARIC VERSION)

የቀበሌ አስተዳዳሪዎች፣ የልማት ቡድን ሚሪዎች፣ ለሃይማኖት ሚሪዎች፣ የጤና ኤክስቴንሽን ሰራተኛ እና የጤና ባለሞያ የተዘጋጀ ማከይቅ

መመሪያ፡ ከተዘረዘሩት ምርጫዎች ሜልስ የያዘዉን ቁጥር በማክበብ እና ምርጫለሌላቸዉጥያቄዎች ክፍት ቦታዉን በመሞላት ይሜልሱ። ይህ ማከይቅ በድምጽ መቅረጽ ጭምር የሚከናወን ነው ፡

ተ.ቁ	ጥያቄዎች	ሜልስ	
1	የሚሰጥር ቁጥር	(_____)	
2	የተጠያቂውአይነት	1. የቀበሌ ሊቀመንበር 2. የልማት ቡድን ሚሪ 3. የሀይማኖት አባት 4. በቀበሌውታዋቂ ሰው 5. የጤና ኤክስቴንሽን ሰራተኛ 6. የጤና ባለሞያ 7. ኦፊሰር/ኤክስፐርት	
3	የቀበሌውመኖ	1. ገጠር 2. ከተማ	
4	የተጠያቂውእድሜ	(_____) ዓመት	
5	የተጠያቂውሐይማኖት	1. ኦርቶዶክስ ተዋህዶ 2. ሙስሊም 3. ፕሮቴስታንት	4. ካቶሊክ 5. ሌላይግለፁ_____
6	የተጠያቂውየትምህርት ደረጃ	5. መደበኛ ትምህርት የሌላቸዉ 6. አንደኛ ደረጃ(1-8)	7. ሁለተኛ ደረጃ (9-12) 8. ኮሌጅእና ከዚያ በላይ
7	የተጠያቂውየስራ ሁኔታ	8. አርሶ አደር 9. የቤት እመጌት 10. የግል/የመንግስት ተቀጣሪ/ 11. ነጋዴ	12. ተማሪ 13. የቀንሰ ራተኛ 14. ሌላይግለፁ----------
8	ለቀበሌውዋና የትራንስፖርት ዓይነት ምንድን ነው?	ሆስፒታል	1. በእግር 2. በአህያ/በቅሎ 3. መኪና/ባጃጅ/አንቡላንስ 4. ሌላ ካለ ይገለጽ
		ጤና ጣቢያ	1. በእግር 2. በአህያ/በቅሎ 3. መኪና/ባጃጅ/አንቡላንስ 4. ሌላ ካለ ይገለጽ
		ጤና ኬላ	1. በእግር 2. በአህያ/በቅሎ 3. መኪና/ባጃጅ/አንቡላንስ 4. ሌላ ካለ ይገለጽ
9	የመንገዱን ሁኔታእንደት ይገመግሙታል	1. ምቹነው 2. ምቹአይደለም	
10	ጤና ጣቢያው/ሆስፒታሉ ከቀበሌውበአማኝ ምን ያክል ይርቃል	1. ቅርብነው 2. መካከለኛ ነው 3. ሩቅ ነው	

11	በወሊድ ወቅት የቀበሌአችሁ ሁሉም እናቶች የአንቡላንስ አገልግሎት አግኝተውያውቃሉ?	1. የለም 2. አዎ
12	በተ.ቁ 11 ሜልስዎ አዎ ከሆነ ለሞሉድ ወደ ጤና ተቋምሲትሄዱነውወይስ ከወለዱበኃላ?	1. ከሞሉዳቸውበፊት (ከቤት ወደ ጤና ተቋምሲሄዱ) 2. ከወለዱበኋላ (ከጤና ተቋምወደ ቤት ሲሞሉ) 3. ከቤት ወደ ጤና ተቋምእና ከጤና ተቋምወደ ቤት

13. በጤና ተቋማት ስለሚሰጡውተከታታይነት ያለውየእናቶች እና ጨቅላ ህጻናት የጤና አገልግሎት ምን ግንዛቤ አለዎት?

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14. በእርስዎ አስተያየት በአካባቢያችሁ/ በቀበሌያችሁ እናቶች ተከታታይነት ያለውየእናቶች እና ጨቅላ ህጻናት የጤና አገልግሎትን ለምን ይጠቀማሉ?

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15. በእርስዎ አስተያየት ተከታታይነት ያለውየእናቶች እና የጨቅላ ህጻናት የጤና አገልግሎትን እናቶች እንዳይወስዱየሚያደርጉ ምክንያቶች ምን ምን ናቸው? **(ከገንዘብ እጥረት አንጻር፣ ቅድመ ዝግጅት ባለመኖሩ፣ የጤና ተቋሙ አገልግሎት ጥሩ ስላልሆነ፣ በጤና ተቋማት እምነት ስለሌላቸው፣ ድንገት ምጥ ስለማጣ፣ የቤተሰብ ድጋፍ ስለሚይኖራቸው፣ በልምድ አዋላጅ ሞሉድ ስለሚፈልጉ፣ የገንዘብ እጥረት ስላላቸው፣ ጤና ተቋሙሩቅ ስለሆነ፣ ትራንስፖርት ስለሌለ፣ የጊዜ እጥረት፣ ስላለባቸው፣ ከወሊድ በኋላ ብዙ ጊዜ ስለምቆዩ፣ የማዋለጃ መሳሪያዎች ስለሌሉ፣ የመድኃኒት እጥረት ስላለ፣ የጓደኛ ተጽዕኖ ሞኖር፣ እንግልት ስለሚደርስባቸው፣ ባማያዎች በክብር ስለሚያስተናግዱ፣ ቀዶ ጥገና በሞፍራት፣ ተቋሙ ዝግ ስለሆነ፣ እናቶች እርግዝናን ስለሚዘብቁ)**

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16. በቀበሌያቸሁ ተከታታይነት ያለው የእናቶች እና ጨቅላ ህጻናት የጤና አገልግሎት (ቅድሞወሊድ፣ ቅድመወሊድ የእርግዝና ክትትል፣ ወሊድ እና ድህረ ወሊድ ክትትል) ከሰለጠነ የጤና ባለሞያ በሚገኙት አገልግሎት የሚከቀመእናቶች እርካታቸውምን ይሞላል?

5. በጣምረክተዋል
6. በሞጡ እርካታ አላቸው

7. የእርካታ ደረጃውን ማሟላት አልችልም
8. እርካታ የላቸውም

17. ያለሚካታቸውምክንያት ምን ሊሆን ይችላል

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18. እናቶች የሚያገኙት ተከታታይነት ያለውየእናቶች እና የጨቅላ ህጻናት የጡት አገልግሎትን የጥራት ሁኔታ እንደት ይመዘኑታል?

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19. እናቶች እና ጨቅላ ህጻናት ተከታታይነት ያለውየጡት አገልግሎት እንድያገኙ የቀበሌው፣ የልማት ቡደኑ፣ የሃይማኖት አባቶች ምን ድጋፍ ታደርጋላችሁ? **(የአካባቢውን ማህበረሰብ በማከተባበር የገንዘብ ድጋፍ ማድረግ፣ የትራንፖርት፣ አገልግሎት ማመቻቸት፣ ቅድመዝግጅት፣ እንድያደረጉ፣ ምክር ማከጠት፣ ስለ ጡት ተቋሙሁኔታ ምክር ማከጠት፣ አጎበር እንድጠቀሙ ክትትል ማድረግ፣ የነፍሰጡር ውይይት እንድካሄድ ድጋፍ ማድረግ፣ በጡት ኤክስቴንሽኖች ቤት ለቤት ምክር እንድሠጥ ክትትል ማድረግ፣ አገልግሎቱን እንድያገኙ ድጋፍ ማድረግ፣ በልማት ቡድን ተጠሪዎች አማካኝነት ድጋፍ ማድረግ፣ በቤት እንዳይወልዱ ቅጣት ማከቀጫ)**

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<u>ይህ ማከይቅ በጡት ባለሞያዎች እና በጡት ኤክስቴንሽኖች ብቻ የሚሞላ ነው</u>

20. በእርስዎ ግምት ሁሉምእናቶች አስፈላጊ የሆኑ የጡት ምርመራዎች በቅድመወሊድ፣ ወሊድ እና ድህረ ወሊድ ወቅት ያገኛሉ ብለውያስባሉ? (አካለዊ ምርመራ, የላቦራቶሪ ምርመራ, መድሃኒት, የምክር አገልግሎት, አደገኛ በእርግዝና፣ በወሊድ እና ደህረ ወሊድ ወቅት የሚከሰቱ ምልክቶች ምክር አገልግሎት፣ የወሊድ እቅድ ቅድመዝግጅት ምክር, ድህረ ወሊድ ክትትል ምክር, የጡት ባለሞያዎች ተግባቦት..... የህክምና ቁሳቁስ አቅርቦት፣ አጠቃላይ የአገልግሎት ጥራት)

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ANNEXURE P: EDITING OF THESIS DECLARATION

DECLARATION:
EDITING OF THESIS

24 March 2023

To Whom It May Concern

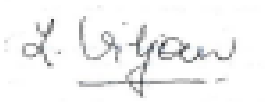
Language Editing

This is to certify that I have edited the language of the thesis of **Solomon Abtew Adete** presented for the degree of Doctor of Philosophy (PhD) in Public Health at the University of South Africa.

Title: *A Model for Continuum of Care for Reducing Maternal and Neonatal Deaths in North Western Ethiopia.*

Supervisor: Professor RM Mmusi-Phetoe

Feedback about the work has been provided to the author and, to my knowledge, after corrections the text is free of language errors.



Leonie Viljoen, PhD (UCT)
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Technical editing

I, Ronèl Gallie, acknowledge that I did the technical formatting, checking of the reference list, and cross-referencing of the thesis of **Solomon Abtew Adete**. Feedback about the work has been provided to the candidate.

Ronèl Gallie
Technical editor
Cell: 084 7780 292

ANNEXURE Q: TURNITIN DIGITAL RECEIPT

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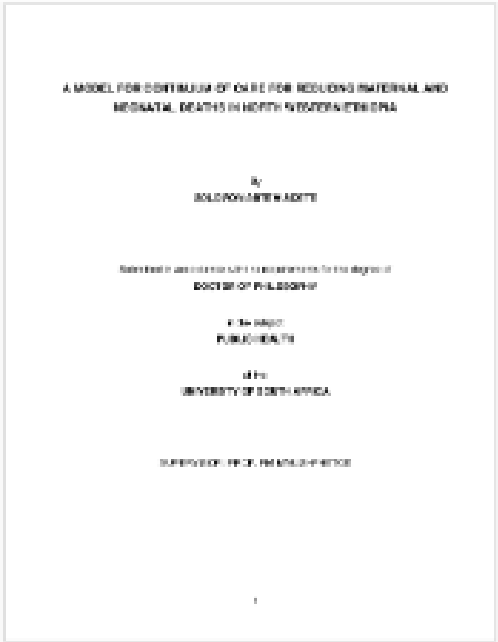

A MODEL FOR CONTINUUM OF CARE FOR REDUCING MATERNAL AND NEONATAL DEATHS IN NORTH WESTERN ETHIOPIA

BY

DOCTOR OF PHILOSOPHY

PUBLIC HEALTH

UNIVERSITY OF SOUTH AFRICA