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COLLEGE OF HEALTH SCIENCE

SCHOOL OF PUBLIC HEALTH

MATERNAL CONTINUUM OF CARE AND ITS DETERMINANTS AMONG MOTHER WHO GAVE BIRTH IN BENSA DISTRICT,NORTH EAST SIDAMA REGION, SOUTHERN ETHIOPIA, 2025: A MIXED METHOD STUDY.

BY; - AWGICHEW MEKBIB.

AUGUST, 2025

HAWASSA, ETHIOPIA

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A RESEARCH THESIS TO BE SUBMITTED TO DEPARTMENT OF PUBLIC HEALTH, COLLEGE OF HEALTH SCEINCE, PHARMA COLLEGE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC HEALTH.

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HAWASSA, ETHIOPIA

ADVISOR APPROVAL SHEET

PHARMA COLLEGE SCHOOL OF PUBLIC HEALTH

I, the undersigned, student declare that this thesis proposal is my original **"MATERNAL CONTINUUM OF CARE AND ITS DETERMINANTS** AMONG MOTHER WHO GAVE BIRTH IN **BENSA DISTRICT,NORTH EAST SIDAMA REGION, SOUTHRN ETHIOPIA ,2025.**

" work in partial fulfilment of the requirement for the Masters of in General Public Health"

Name   Signature: Date

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Place of submission: **School of Public Health, Pharma College.**

Date of Submission: **August, 2025**

This thesis report work has been submitted with my approval as a College advisor(s).

   Hawa Hussein_____   _____   **August, 2025**

Name of Major Advisor   Signature   Date

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EXAMINERS APPROVAL SHEET

We the undersigned members of the board of Examiners of the final Thesis Proposal open defence by _____ have read and evaluated his/her thesis entitled **"MATERNAL CONTINUUM OF CARE AND ITS DETERMINANTS** AMONG MOTHER WHO GAVE BIRTH IN **BENSA DISTRICT,NORTH EAST SIDAMA REGION, SOTHERN ETHIOPIA ,2025 "** and examined the candidate. This is therefore to certify that the thesis proposal has been accepted in partial fulfilment of the requirements for the degree of the Masters of General Public Health.

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Name of examiner	Signature	Date
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Abbreviation and Acronyms

ANC ------------------------ Antenatal Care

BPCR ------------------------Birth Preparedness and Complication Readiness

CBHIS---------------------- Community-Based Information System

CoC --------------------------Continuum of Care

DHS --------------------------Demographic and Health Survey

EDHS ------------------------Ethiopian Demographic and Health Survey

EmONC ---------------------Emergency Obstetric and Newborn Care

FMoH ------------------------Federal Ministry of Health

LMICs------------------------Low- and Middle-Income Countries

MDG ------------------------ Millennium Development Goal

MNH ------------------------ Maternal and Newborn Health

MNCH ------------------------Maternal, Newborn, and Child Health

MMR ------------------------ Maternal Mortality Ratio

PNC --------------------------Postnatal Care

SBA --------------------------Skilled Birth Attendance

SDG --------------------------Sustainable Development Goal

SSA --------------------------Sub-Saharan Africa

VIF ----------------------------Variance Inflation Factor

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Abstract

Introduction: The continuum of care throughout pregnancy, childbirth, and postnatal period is one of the vital strategies for improving maternal and neonatal health. However, compared to other sub-Saharan African countries, Ethiopia has one of the lowest completion rates along the three continua of antenatal care, skilled birth attendance, and postnatal care. This highlights the need for further attention and targeted interventions to improve maternal and newborn health outcomes in the country

Objective: the aim of this study is to assess maternal continuum of care and its determinants among mothers who gave birth in Bensa district, Sidama region, Southern Ethiopia, 2025. **Method:** A community-based cross-sectional study was conducted, involving a total of 429 mothers who gave birth in the last six months. Participants were selected through multistage sampling followed by simple random sampling. A binary logistic regression model was employed to examine the association between dependent and independent variables. Variables with a p-value less than 0.25 in bi-variable analysis were included in multivariable analysis. Statistical significance was declared at a p-value less than 0.05.

For the qualitative component, a phenomenological study design was adopted. Data collection was encompassing in-depth interviews or focus group discussions with selected participants. The qualitative data was undergoing thematic analysis, where emerging themes and patterns was identified and interpreted to provide deeper insights into the maternal care continuum.

Result: In this study, 92 (45.8%) mothers completed the continuum of maternity care. Women aged >24 years (AOR = 1.6, 95% CI: 1.1–2.4), Educational status of the mother (AOR = 2.5, 95% CI: 1.6–4.0), women with planned pregnancies (AOR = 2.0, 95% CI: 1.4–3.0) and exposure to mass media (AOR = 1.7, 95% CI: 1.1–2.7) were the factors identified.

Conclusion and recommendation: In this study, completion of the maternity continuum of care was low. Therefore, appropriate strategic interventions that retain women in the continuum of maternity care by targeting those factors were recommended to increase the uptake of the continuum of maternity care. On qualitative finding Participants frequently cited transportation challenges, long distances to health facilities, and indirect costs as major barrier.

1. Introduction

1.1. Background

The concept of the continuum of maternity care refers to the seamless provision of healthcare services that a woman receives throughout her pregnancy, childbirth, and postnatal period (1). It is a critical strategy for reducing maternal mortality and morbidity (2). This framework encompasses two dimensions: (1) time, emphasizing the need for care throughout the stages of pre-pregnancy, antenatal, intra- and postnatal periods for women, as well as from the newborn period through adolescence for children; and (2) place, emphasizing the importance of integrated service delivery across communities, primary healthcare facilities, and referral centers (1-3). The primary goal of the continuum of care is to offer women reproductive health services and ensure that newborns have the opportunity for a healthy childhood (4). Additionally, the framework emphasizes the importance of integrated service delivery to enhance efficiency, control costs, and minimize maternal and neonatal mortality (5).

Even though, there were great improvements over the last two decades, insufficient or non-existent care during pregnancy and delivery was fundamentally accountable for an estimated 287,000 maternal death in 2023 (6). The majority of these deaths occurred in LMIC countries, where access to skilled health professionals and quality care is often limited. Specifically, SSA and Southern Asia accounted for around 87% of these deaths. Addressing the gaps in maternal healthcare services in these regions is essential to reduce mortality rates. Implementing a comprehensive continuum of care (CoC) approach not only has the potential to save maternal lives but also holds the promise of saving up to 160,000 newborn lives through improved coverage of antenatal care (ANC) and a focused package of interventions. Additionally, an estimated 390,000 newborn lives can be saved by ensuring high coverage of skilled childbirth care, while postnatal care has the potential to save an additional 310,000 lives (4).

Child and maternal survival have been one of the most important advances and worldwide health priorities in recent decades, as evidenced by their adoption as the fourth and fifth Millennium Development Goals, respectively (7) and, later, the third Sustainable Development Goals (8). However, improvements in coverage of life-saving interventions for maternal, newborn, and child health (MNCH) have not consistently translated into reductions in mortality from preventable conditions. In 2019, 295,000 maternal deaths (9, 10), 2.5 million neonatal deaths(11) and 2 million stillbirths were reported (12). In 2019, Ethiopia maternal mortality rate (MMR) per 100,000 live

births was 205 (13). It is not well recognized why, in spite of massive governmental efforts and investments over the past ten years, Ethiopia's utilization of maternal and neonatal health services has not improved. Finding factors linked to the utilization of maternal and newborn health care along the CoC pathway in Bensa district was the primary goal of this study (10). The implementation of the continuum of care (CoC) for maternal and child health services has been recognized as a crucial strategy in reducing maternal and newborn deaths and achieving the global target of reducing maternal mortality to 70 deaths per 100,000 live births (16).

1.2. Statement of problem

Reducing the global burden of preventable maternal, newborn and child mortality and morbidity is a key focus for public health. Every day in 2020, almost 800 women died from preventable causes related to pregnancy and childbirth worldwide.

SSA bears a significant burden of maternal mortality, accounting for 62% of global maternal deaths. Additionally, in this region, approximately 1 in 30 mothers experience complications related to pregnancy (15). Furthermore, the risk of neonatal morbidity and mortality is particularly high in SSA, with a rate of 92 deaths per 1000 live births, which is approximately 15 times greater than that observed in developed countries (16). It is important to note that the majority of these maternal and neonatal deaths are preventable, underscoring the urgent need for targeted interventions and improved healthcare systems in the region (6).

Evidence suggests that effective maternal healthcare provided throughout pregnancy, delivery, and postpartum periods could potentially prevent around 80% of maternal deaths and two-thirds of neonatal deaths(17). Furthermore, achieving more than 99% coverage of the complete continuum of maternal healthcare services utilization has the potential to prevent 41% to 72% of neonatal deaths worldwide. These findings highlight the importance of comprehensive and continuous care for improving maternal and child health outcomes (18).

The total Completion rate in Jimma zone was 16.1% with significant dropout observed between the first and fourth ANC. (16).The overall prevalence of dropout from maternity CoC was 69.1%.the prevalence of drop out from ANC, skilled birth attendant and PNC visit was 45.4%, 0.5%, and 48.5% respectively. (14).

Despite almost universal ANC attendance for at least one visit in Ghana is 98.4%, a significant proportion of mothers did not access skill birth attendant after ANC.Only 74% continued to access skill birth attendant, indicating 24% attrition in the CoC form pregnancy to child birth. After child birth, 14% of mothers failed to access postnatal care. Consequently, only 66% of mothers access the full complement of maternity service within the continuum of care. (3)

 Adverse birth outcome, still birth, neonatal mortality and neonatal morbidity are the complication of the effect of completion of CoC on the neonate. (12)

The evidence reveals that the completion rate of a continuum of care in maternal health services in South Asia 25%; Sub-Saharan Africa 14% (17); Cambodia 60% (18); Ratanakiri Cambodia 5% (19); Northern Ghana 8% (20); Ghana 10.3% (21); Pakistan 27% (22); Tanzania 10% (23). According to the Ethiopian Demographic and Health Survey (EDHS) 2019 report, 74% of Ethiopian women received at least one antenatal care (ANC) visit, with 43% receiving the recommended four or more appointments. Furthermore, 50% of mothers had birth with the assistance of a qualified birth attendant, and 34% of women got postnatal care (PNC) within the first two days of delivery. Various studies undertaken in rural parts of Ethiopia have revealed a variety in the utilization of the entire continuum of maternal healthcare services, ranging from 9.7% (25) to 47% (11). These findings show the disparities in maternity healthcare access and utilization among Ethiopia's rural areas.

Even while trends in reproductive health indicators from 2000 to 2019 demonstrated considerable progress in maternal health care service consumption, the gap in the continuum of maternal health care services remained impressively large (9, 24, 25). Ethiopia has one of the lowest completion rates for the continuum of maternal care services in SSA, including prenatal care (ANC), skilled birth attendance, and postnatal care (PNC)(11, 26). For example, Ethiopia's completion rates are significantly lower than those of other nations in the area (27). Despite global efforts to improve maternal and newborn health, many women in low- and middle-income countries still do not receive the full continuum of maternal care, which includes antenatal care (ANC), skilled birth attendance (SBA), and postnatal care (PNC). The gaps in this continuum contribute significantly to preventable maternal and neonatal morbidity and mortality. Incomplete utilization of these services weakens the impact of maternal health interventions and delays the identification and management of complications during and after pregnancy. Unlike other regions in Ethiopia, including Sidama, there is limited data on the proportion of mothers who complete the continuum of maternity care and the factors that contribute to its completion in our study area.

1.3. Significance of the study

This research is critical for closing large gaps in Sidama region specifically, Bensa district maternal continuum of care. This study will look at the prevalence and influencing factors of maternity care completion, particularly in underserved areas like East Sidama region, Bensa district. By identifying these determinants, the study hopes to devise tailored treatments to increase maternity

care utilization and quality. The results would promote the creation of successful health policies and programs by offering policymakers and managers of health programs insightful information. The study would also act as a reference for other researchers in the field and produce baseline data for upcoming investigations. By encouraging more equitable and efficient healthcare practices, this research ultimately brings; reducing maternal and neonatal mortality, identifying determinants of Care utilization, informing policy and program development, promoting equity in healthcare access.

2. Literature review

2.1. Magnitude of complete maternal continuum of care

Every day in 2020, almost 800 women died from preventable causes related to pregnancy and childbirth worldwide. The majority of these deaths (95%) occurred in low- and middle-income countries (6). Based on research conducted in Xaybouathong district in Lao People's Democratic Republic , it was found that only 6.8% of women continued to receive the full range of maternal healthcare services (26). Similarly, in three regions of Ghana, the percentage of women who completed the continuum of care, which includes receiving ANC4+ (antenatal care at least four times), skilled birth attendance (SBA), and postnatal care (PNC), was only 8.0% (27). Another study conducted in Ghana revealed that throughout the stages of pregnancy, delivery, and post-delivery, only 7.9% of women and children achieved the continuum of care(21). Similarly, in four districts in Tanzania, the percentage of women who achieved the continuum of care was 10% (23).

Based on a survey conducted in Nepal, only 41% of women received antenatal care (ANC), skilled birth attendance (SBA), and postnatal care (PNC) during their most recent birth (28). Similarly, a study conducted in Sohag government, Egypt, revealed that 50.4% of women achieved the continuum of care, which included having at least four ANC visits, being attended by a skilled birth attendant, and receiving PNC (29). Additionally, a study conducted in Cambodia reported that 60% of women had access to the full range of services for maternal and newborn health care. Received Health Information about Maternity Care, This variable indicates whether women have received information about maternity care services, including ANC, skilled birth attendance, and PNC. It can be measured as a binary variable(5).

According to a study conducted in India, the majority of women and their newborns did not receive continuous maternal, newborn, and child health (MNCH) services. The study revealed that only 38.8% of women in India completed the continuum of care for maternal and child health across all four levels. This indicates that the overall level of continuum of care in the country is 38.8% (30). A trend analysis carried out in Pakistan between 2006 and 2012 showed an increase in the completion rate of continuum of care among women, rising from 15% to 27% over that time period (31).

A systematic review and meta-analysis conducted in Ethiopia found that the overall prevalence of complete utilization of maternal healthcare services throughout the continuum was 25.51%.The

range of prevalence varied from 9.7% to 47%Age at First Pregnancy This variable refers to the age at which a woman experiences her first pregnancy. It can be measured in years. (32).

In a community-based study conducted in Legambo district, South Wollo, northeast Ethiopia, the prevalence of maternity continuum of care among mothers was reported to be 11.2% (32).On the other hand, in a community-based cross-sectional study conducted in southwest Ethiopia, it was observed that 32.2% of women dropped out of the maternity continuum of care (33). Another study also conducted in northwest Ethiopia reported that the overall completion rate of the continuum of maternal healthcare services was 21.60% (34).Studies conducted in various regions of Ethiopia have examined the completion rates of the continuum of maternal health care services. In Arbaminch Zuria woreda, Southern Ethiopia, the completion rate was found to be 9.7% (35). The Ethiopian Demographic and Health Survey (EDHS) conducted in 2016 reported a completion rate of 9.1% (36). A study in West Gojjam Zone, showed the completion rate to be 12.1% (37). However, in a cross-sectional study conducted in Debre-Markos, a higher prevalence of 67.8% for the maternal continuum of care was observed(38). According to the study in Debre-birhan, the proportion of women who completed the continuum of maternity care was 37.2% (39).

2.2. Factor associated maternal continuum of care

2.2.1. Socio-demographic factors

A study conducted in Gondar Zuria district found that mothers with basic literacy skills, specifically the ability to read and write, were 2.7 times more likely to complete the continuum of care for maternal health services compared to those who lacked these skills (34). This finding aligns with the results of studies conducted in Ghana, Egypt, Nepal, South Asia, and Sub-Saharan countries, which also demonstrated a positive association between women's education and the completion of the continuum of maternal healthcare services (21, 29, 40, 41). A systematic review and meta-analysis conducted in Ethiopia found that having a secondary education or higher was strongly linked to the utilization of maternal healthcare services throughout the continuum. Mothers with a secondary education or above were 2.97 times more likely to have access to the continuum of maternal healthcare services compared to those with lower educational attainment (42).

The cross-sectional study conducted in Ethiopia demonstrated that living in rural areas was associated with decreased completion rates of the continuum of maternal healthcare services (43). Other study in Ghana also support this finding (44).Other community-based cross-sectional study

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Siyadebirena Wayu district, Ethiopia indicated that Urban dwellers had a better continuum of maternal health service utilization compared with rural women(45). Likewise, a national study conducted in Gambia highlighted that women residing in rural areas were less likely to complete the continuum of care (46). Different studies showed that women with higher age are more likely to complete maternal care than young mothers (5, 23, 31).

Furthermore, a study conducted in Ghana demonstrated mothers who are single are less likely to complete maternal CoC compared to those mothers who are married (27). The findings of this study illustrated that a husband or partner with a primary education and higher positively affected completion of MNCH care according to the study conducted in Gambia (46). Women whose occupation is farming were 82 percent less likely to complete the CoC compared to housewives according to study done in Ethiopia (47).

2.2.2. Women and health facility related factors

Evidence suggested that there is a strong relationship in between type of transport used to health facility and CoC completion. The results revealed that women who had access to good transport (private car/ambulance) to the delivery place were over twice more likely to complete continuum of care (CoC) compared to those who travel on foot (27). Mothers who did not perceive the distance to the nearest health facility as a problem had a higher COC compared to those who perceived the distance to the nearest health facility as a problem (43). A study in northwest Ethiopia identified that mothers with less than one hour of travel time to the health facility were more likely to complete the continuum of maternal health services (34).

In a study conducted in northeast Ethiopia, it was found that mothers who actively engaged with media, such as television, radio, or newspapers, were 2.3 times more likely to receive the maternity CoC compared to mothers who did not engage with media (32). This finding is consistent with a study conducted in Pakistan in 2017 (31) and another study conducted in Debre-Markos town, Ethiopia in 2019 (38), which both reported that mothers who followed media were 1.45 and 2.62 times more likely to complete the maternity CoC, respectively.

A study conducted in Ethiopia found that mothers who had autonomy in making healthcare decisions were 3.7 times more likely to complete the maternity CoC compared to mothers who did not have decision-making autonomy (32). This finding aligns with a study conducted in Pakistan,

which reported that mothers who had autonomy in healthcare decision-making were 1.26 times more likely to complete the CoC compared to their counterparts (31).

2.2.3. Obstetric and health related factors

A study conducted in Ethiopia revealed that mothers who utilized pre-pregnancy contraceptives were 2.7 times more likely to complete maternity care compared to mothers who did not use these contraceptives (32). This finding is consistent with another study conducted in Arbaminch Zuria Woreda, which indicated that mothers who used pre-pregnancy contraceptives were 3.9 times more likely to access the full range of maternity care services compared to their counterparts (48).

According to study done in south Wollo, it was observed that mothers who intentionally planned their pregnancies were 2.4 times more likely to complete maternity care compared to those who had unplanned pregnancies (32). This finding is consistent with similar studies conducted in Ghana(44), Arbaminch Zuria Wereda in Ethiopia in 2019 (48), and Debre-Markos town in Ethiopia in 2019 (38). In these studies, it was found that mothers who planned their pregnancies were 1.75, 3.4, and 3.4 times more likely, respectively, to complete the continuum of maternity care compared to their counterparts.

Factors such as receiving the first ANC within the first trimester (26) and well prepared on birth and complication readiness (39) were found to positively increase the chance of completing maternity care in our study area.

Conceptual framework.
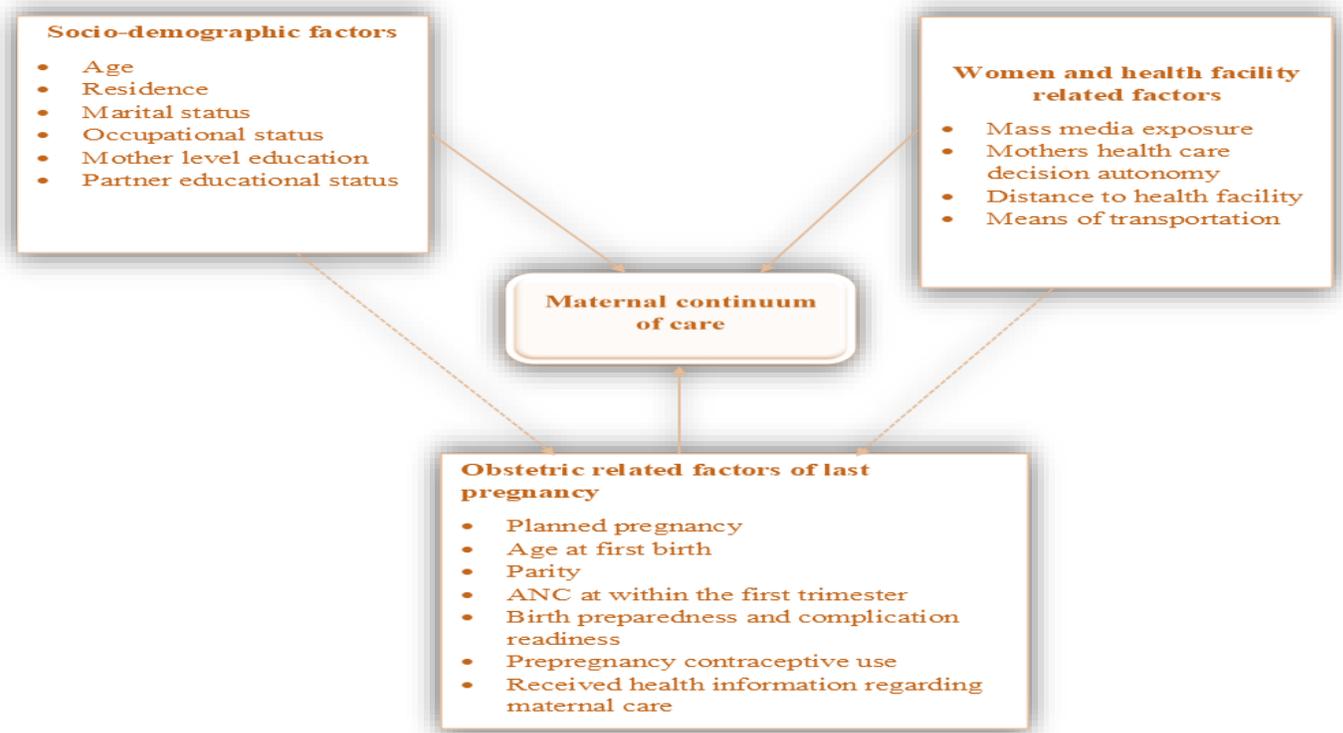
Figure 1: Conceptual framework for the study on Levels of maternal continuum of care and its determinants among mothers who gave birth Bensa district, Sidama region, Southern Ethiopia, 2025.

3. Objectives

3.1. General objective

To assess levels of maternal continuum of care and its determinants among mothers who gave birth in Bensa district, Sidama region Sothern Ethiopia, 2025.

3.2. Specific objectives

- To determine magnitude of maternal continuum of care among mothers who gave birth in Bensa district, Sidama region Southern Ethiopia, 2025.
- To identify factors associated with maternal continuum of care among mothers who gave birth in Bensa district, Sidama region Sothern Ethiopia, 2025.

4. Methodology

4.1 Study area

Bensa woreda consists of seven urban kebeles and fifteen rural kebeles. The town of Daye is situated in the northeastern direction, approximately 406 km from Addis Ababa, the capital of Ethiopia, and 131 km from Hawassa town, the capital city of the Sidama region. The district's geography includes both highland and lowland areas. In terms of healthcare facilities, the district has one general hospital and seven government health centers, one comprehensive health post and fourteen basic health post. According to the Bensa Woreda Communication Affairs report (2016 E.C.), the district has a total population of 210,222, with 42,902 households. Among the population, 104,060 are male and 106,162 are female. Additionally, an estimated 3,461 mothers are expected to be pregnant annually (43).

4.2 Study design and Period

Community-based cross-sectional and phenomenological study design was conducted from, June to August, 2025.

4.3. Population

4.3.1. Source populations

All women who gave birth and found in between first week to 6 months of postpartum period in Bensa Woreda.

4.3.2 Study populations

Selected women who gave birth and found in between first week to 6 months of postpartum period in Bensa district.

4.4. Inclusion/exclusion criteria

4.4.1 Inclusion criteria

The study will include mothers who meet the following criteria:

- ✓ They have given birth and are within the postpartum period, specifically from the first week up to 6 months after delivery.
- ✓ They reside in kebeles that were randomly selected within the Bensa district.

4.4.2 Exclusion criteria

The study will exclude mothers who:

- ✓ Gave birth outside of Bensa district and subsequently moved to the study area.
- ✓ Are critically ill and unable to participate in or respond to the interview process.

4.5 Sample size determination

- ✓ The sample size for the first objective was determined using the single population proportion formula and the assumptions used were: a 95% confidence interval (CI); 5% margin of error; and a population proportion of complete continuum of care 21.6%, which is taken from a study conducted in Northwest Ethiopia (34).

- ✓ $n = \dfrac{Z^2 pq}{d^2} = \dfrac{1.96^2 (0.216*0.784)}{0.05^2}$

  Where, =initial sample size

  $n = (1.96)2\ (0.216)\ (1-0.216)/\ (0.05)2$

  $= 3.8416(0.216)\ (.0.784)/.0025$

  $= .0.65/.0025 = 260$

- ✓ On the other hand, to assess factors associated with maternal continuum of care: First, the sample size will be calculated by using different determinant factors maternal continuum of care separately from recent previous study, and the largest value was taken to increase the power of the study. The sample size on this assumption was calculated by using Epi-Info version 7.2.

Table 4.1.1: Sample size calculation for the second objective for the study maternal continuum of care and its determinants among mothers who gave birth in Bensa district, east sidama region, Southern Ethiopia, 2025

Associated variables	Percent of controls exposed	Odds ratio	Power	Confidence interval	Ratio of controls to cases	Sample size
Exposure to Media	50%	5.85	80%	95%	1:1	64
Place of residence	21.5%	1.9	80%	95%	1:1	76
Pre pregnancy family planning use	17.6%	3.97	80%	95%	1:1	38

✓ By taking into consideration both the first and second objectives, since it is better to take the largest sample size, the maximum sample size is 260 from the first objective. Therefore, the final sample size for this study after considering design effect of 1.5 and by adding 10% non-response rate and became 429.

4.6. Sampling technique

A multistage sample strategy was used to achieve a complete representation of the Bensa district's maternal population. Initially, eight kebeles were randomly selected from the district, constituting approximately 30% of the total kebeles. This selection was conducted using the lottery method to ensure impartiality and randomness.

Following the kebele selection, proportional allocation was applied to determine the sample size for each selected kebele. This allocation is based on the number of mothers who gave birth within the last year before the data collection period, as recorded in the Community Based Health Information System (CBHIS) register for each kebele.

This method ensures that larger kebeles, with more births, contribute proportionally more to the sample size. For the selection of individual study participants, systematic random sampling techniques were employed. A list of eligible mothers was compiled from the CBHIS register,

containing their names and house numbers. From this list, participants were selected systematically at regular intervals, ensuring a representative sample of mothers who have given birth in the selected kebeles within the specified timeframe. This approach provides a structured yet random method for participant selection, minimizing bias and ensuring adequate representation.

Interviews with mothers were conducted at their homes, utilizing the information gathered from the CBHIS register to locate and contact participants efficiently. For Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs), participants were selected purposively. Key informants included medical directors from primary level health facilities, representatives from the woreda and zonal health department, as well as maternal and child health experts and unit heads of maternity wards. This purposive selection ensures that knowledgeable and relevant stakeholders contribute to the qualitative aspect of the study.

Regarding the application of sampling methods, both hospitals and health centers was considered. The Community Based Health Information System (CBHIS) registers, which will be used for participant selection, typically encompass data from both hospitals and health centers, ensuring that mothers who gave birth in either setting are included in the study sample.

Table 2 Summary of Method

Stage	Action
1	Treat each kebele as a cluster.
2	Selected 8 kebeles using **PPS sampling**.
3	Within each selected kebele, randomly sample households or individuals.

.
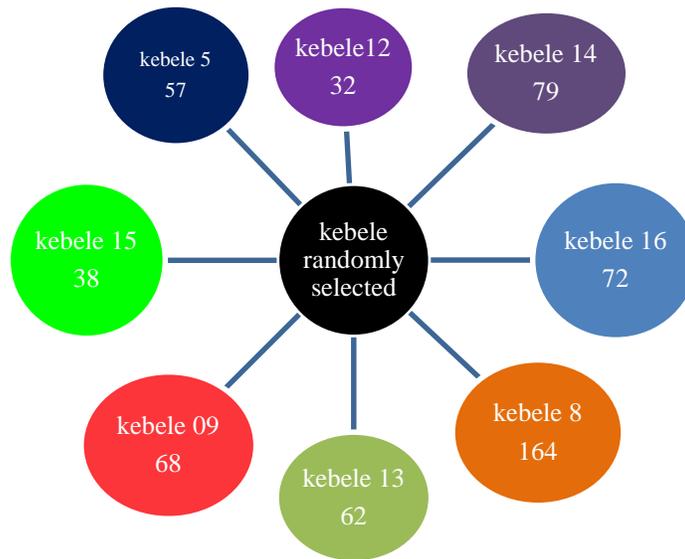
Figure: - The diagram illustrates the randomly selected kebeles and their proportionally allocated sample sizes.

4.7 Study variables

4.7.1 Dependent variable

Continuum of maternal healthcare (yes/no).

4.7.1 Independent variables.

- Socio-demographic variables of women (age, educational status, husbands' education status, occupational status of mothers, residence, marital status),
- Women and health facility related factors (mass media exposure , maternity care decision autonomy, distance to health facility and means of transportation), and
- Obstetric related factors (planned pregnancy, age at first birth, parity, and times of ANC initiation, birth preparedness and complication readiness, pre-pregnancy contraceptive utilization, health information regarding maternity care).

4.8. Operational Definition

Maternity continuum of care: Women have Eight or more ANC visits by skilled provider plus have had childbirth aided by skilled birth attendant (SBA) and who attend postnatal care (PNC)

within 6 weeks after childbirth (at least once after discharge from health facilities or within the first week after childbirth at their home)(49).

Skilled provider: A health care professional such as doctor, nurse, midwife, health officer or health extension worker working in the health facilities and who has got the necessary pre-service and/or in-service training for the provision of MNH services (50).

A woman was considered as 'well prepared' for birth and its complications when she reported that she has implemented five or more components of birth preparedness and complication readiness (BPCR); otherwise she was considered as 'not well prepared'. The components of BPCR considered in this study were identified place for birth, identified skilled birth attendants, saved money, identified transportation for emergency conditions, identified a companion during labor and birth, identified blood donors, and identified care giver to children at home when the mother was away (51, 52).

Autonomy in household decision making: A woman was said to have autonomous decision making power in seeking MNH services if she alone or with her husband (jointly) decided on seeking MNH services; otherwise (if her husband alone or a third person decided on seeking MNH services) she was considered as not having autonomous decision making power (27).

Women said to be exposed to media: if she Read a newspaper/ listen to radio/watch television at least once a week are considered to be regularly exposed to that form of media (32).

Knowledge on pregnancy danger signs: A woman was classified as knowledgeable if she spontaneously mentioned at least two of the four key danger signs of pregnancy (vaginal bleeding, severe headache, blurring of vision and swelling of feet or face); if not she was classified as not knowledgeable (23)

Knowledge on postpartum danger signs: In this study, danger signs postpartum were assessed using 5 items, with a correct answer given a score of "1", and an incorrect answer given a score of "0". A woman was categorized as knowledgeable to obstetrics danger signs of postpartum if she could answers correctly a minimum of three of the questions 9 she asked.

4.9 Data collection tools and procedures

In the quantitative phase of this study, data were collected through pre-tested structured face-to-face interviews using a carefully designed questionnaire designed on Kobo data collection tool. This tool captures information on socio-demographic variables, health facility-related factors, and

obstetric-related factors pertinent to women's health. The questionnaire will be prepared in Amharic to ensure clarity and comprehension among participants.

The questionnaire was developed based on both primary sources, including field observations and expert input, and secondary sources, such as established guidelines and existing literature on maternal and obstetric health. To ensure the validity of the tool, it undergoes pre-testing with a small sample of the target population and be reviewed by a panel of specialists in public health and obstetrics. Data collection was carried out by three diploma midwives under the supervision of one BSc public health officer. The data collectors, supported by the Village health leaders, were conduct home visits for data collection. In cases where participants are absent, follow-up visits were made, and absent participants were replaced with the next available neighbor to ensure a representative sample is maintained.

For the qualitative phase of the study, we employ semi-structured questionnaires to conduct Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs). Probing questions were utilized where necessary to delve deeper into specific topics and ensure a comprehensive understanding.

Each participant was undergoing an individual interview at their place of work, with interview durations ranging from 20 to 35 minutes. Trained data collectors conducted these interviews, ensuring consistency and adherence to the interview protocol.

After completing the individual interviews, FGDs will be organized for Skilled Birth Attendants (SBAs) working at maternity wards. These discussions lasted approximately 60 to 90 minutes and will be facilitated by one interviewer with a note taker present.

Skilled birth attendants with clinical work experience of less than six months were excluded from participating in the qualitative study to ensure that participants possess sufficient experience and insights relevant to the research objectives.

To ensure accuracy and reliability, all interviews and discussions were audio recorded and transcribed verbatim in Amharic, the local language. Transcripts were undergoing consistency checks by other investigators and were verified by listening to the audio recordings again. Subsequently, transcripts will be translated into English before analysis.

Regarding the semi-structured interview guidelines, detailed questionnaires were developed in line with the research objectives and themes of interest. These guidelines included open-ended

questions designed to explore participants' perspectives, experiences, and insights related to maternal health care in the study area.

Regarding the exclusion of in-depth interviews with study participants, the decision was made to focus on KIIs and FGDs as they allow for capturing a broader range of perspectives and insights within a limited timeframe. Additionally, KIIs and FGDs facilitate interaction and discussion among participants, potentially generating richer data through shared experiences and collective reflections.

4.10 Data quality assurance

To assure the quality of data, first the questionnaire was prepared in English language and translated into the local language (Amharic). A 5% pretest was done in Bona woreda to check the reliability of the tool and to assess instrument feasibility, simplicity flow, and consistency. One-day training on data collection techniques was given to data collectors and supervisors. During data collection, the principal investigator and supervisor were made site supervision. The principal investigator was review and checks the collected data for completeness before analysis.

4.11 Data processing and analysis

Quantitative analysis

The collected data checked, coded, and entered into Epi-Data version 4.0.6 and then exported to SPSS version 25 for analysis. Descriptive statistics such as frequency, mean, and standard deviation were used to describe socio-demographic, obstetric, and neonatal characteristics. A binary logistic regression model was used to identify the association between the independent and the outcome variable. To verify the significant association, variables with a P-value < 0.25 in the bivariate model was re-entered into a multivariable logistic regression model. Finally, a variable with a P-value of < 0.05 was considered statistically significant. The variance inflation factor (VIF), tolerance tastes and standard error was used to check the presence of multicollinearity among the covariates. Moreover, the Hosmer-Lemeshow goodness of fit model was used to assess whether the number of expected events from the logistic regression model reflects the number of observed events in the data.

Qualitative analysis

The researchers independently reviewed the audio recorded file line- by- line and then agree on a set of codes; they broadly categorized into those related to the quantitative checklist and codes for other emerging issues. And then coded all the open-ended comments. In cases where there were disagreements between researchers, further discussion was take place until consensus is achieved. The data analysis was carried out in three stages. First, familiarization involving reading and re-reading the transcripts to aid understanding of the data. Second, organizing and coding the data. The coding was determined based on the quantitative results, to aid understanding how the quantitative findings are manifest. The coding was done using open code software. Third, data from each code point was reviewed and summarized to reduce the number of words without losing the content or context of the text and to ensure contents internally consistent. Then content analysis and triangulation of data was done through a continuous back and forth interpretation of findings.

4.12 Ethical considerations.

Ethical approval for this study was obtained from the Pharama College Institutional Research Ethics Review Committee Board (IRERC). A letter of cooperation also secured from Bensa District and selected kebeles. Informed consent was obtained from all participants after providing a clear explanation of the study's objectives, procedures, and data usage. Participants assured of their right to withdraw at any time without penalty. To ensure confidentiality, all data was anonymized using codes and securely stored to prevent unauthorized access. The study was adhering to strict ethical guidelines, prioritizing participant rights, privacy, and dignity. Community engagement was emphasized through workshops, partnerships, and feedback mechanisms to ensure the study benefits the target population. Risk management strategies were implemented to address any potential concerns.

5. Results

5.1. socio-demographic characteristics of study participants

A total of 429 study participants were approached for the study, with a response rate of 97.9%, resulting in data collected from 420 participants. The majority of mothers (38.1%) were aged 25–34 years, while 31.0% were aged 18–24 years. Most participants (61.9%) resided in rural areas. Regarding educational status, 33.3% of mothers could not read and write, while 26.2% had primary education, and 7.1% had attended college or above. Similarly, 23.8% of fathers could not read and write, and 11.9% had attained college-level education or higher. Most respondents (83.3%) were married, and the primary occupations were farming (28.6%) and private-sector employment (19.0%). Fathers were reported as the heads of households in 66.7% of cases. Monthly household income varied, with 42.9% earning 1,000–2,000 Ethiopian Birr, 33.3% earning less than 1,000 ETB, and 23.8% earning more than 2,000 ETB. Transportation to health facilities was predominantly by walking (59.5%), followed by public transport (35.7%)

Table 1*:*- Socio demographic characteristics of the mothers who gave birth in the last 6 months at Bensa district, Sidama Region, Southern Ethiopia (n = 420)

Variable	Categories	Frequency (n)	Percentage (%)
Age of the mother	18–24	130	31.0
	25–34	160	38.1
	35–44	90	21.4
	45+	40	9.5
Residence	Urban	160	38.1
	Rural	260	61.9
Educational Status of Mother	Cannot read and write	140	33.3
	Can read and write	80	19.0
	Primary education	110	26.2
	Secondary education	60	14.3
	College and above	30	7.1
Educational Status of Father	Cannot read and write	100	23.8

	Can read and write	70	16.7
	Primary education	110	26.2
	Secondary education	90	21.4
	College and above	50	11.9
Marital Status	Single	30	7.1
	Married	350	83.3
	Divorced	25	6.0
	Widowed	15	3.6
Occupation	Merchant	60	14.3
	Student	50	11.9
	Daily laborer	70	16.7
	Government employee	40	9.5
	Private sector employee	80	19.0
	Farmer	120	28.6
Head of Household	Mother	140	33.3
	Father	280	66.7
Monthly Income	< 1,000 ETB	140	33.3
	1,000–2,000 ETB	180	42.9
	> 2,000 ETB	100	23.8
Transportation Method	Walking	250	59.5
	Public transport	150	35.7
	Other	20	4.8

5.2 Women factors for mothers on maternity continuum of care

More than half of the participants 230 (54.8%) followed mass media, mainly via radio (161, 70%). Most mothers (280, 66.7%) lived within a 60-minute walking distance to the nearest health facility. Healthcare decision-making autonomy was reported by 250 (59.5%) participants. Awareness of key pregnancy danger signs was observed in 310 (73.8%), and 290 (69.0%) had a positive perception of childhood illnesses. These findings highlight the importance of media exposure, healthcare accessibility, and autonomy in maternal health (table 3).

Table 2: Women factors for mothers on maternity continuum of care who gave birth in the last 6 months at Bensa district, Sidama Region, Southern Ethiopia (n = 420)

Variable	Categories	Frequency (n)	Percentage (%)
Follow Mass Media	Yes	230	54.8
	No	190	45.2
Type of Media	Radio	161	70.0
	Television	46	20.0
	Social media	23	10.0
Distance to Health Facility	≤ 60 minutes	280	66.7
	> 60 minutes	140	33.3
Health Care Decision-Making Autonomy	Yes	250	59.5
	No	170	40.5
Awareness of Pregnancy Danger Signs	Yes	310	73.8
	No	110	26.2
Perception of Childhood Illness	Yes	290	69.0
	No	130	31.0

5.3 Prevalence of Maternal Continuum of Care

Out of the total 420 women who gave birth in the last six months, 270 women (64.3%; 95% CI: 59.5%–68.8%) completed the maternal continuum of care (CoC), while 150 women (35.7%; 95% CI: 31.2%–40.5%) did not.

Determinant factors associated with maternity continuum of care

Maternal age, residence, educational status, planned pregnancy, and exposure to mass media were significantly associated with the completion of the maternal continuum of care (CoC) in the bivariate analysis.

In the multivariable logistic regression analysis, several factors were significantly associated with the completion of the maternal continuum of care (CoC) among women who gave birth in the last six months these are maternal age, residence, educational status, planned pregnancy, distance to health facility, exposure to mass media.

Women older than 24 years were 1.8 times more likely to complete the CoC compared to those aged 24 years or younger, and urban women were more likely to complete the continuum than rural women (P = 0.015). Education played a critical role, with women who attained secondary education or above being nearly three times more likely to complete CoC than uneducated women. Planned pregnancies were strongly linked to CoC completion, with a twofold increase in likelihood among those with planned pregnancies (P < 0.001). Additionally, women exposed to mass media were 1.9 times more likely to complete the CoC than those without such exposure, highlighting the role of information dissemination in promoting healthcare utilization. While distance to health facilities was not statistically significant (P = 0.080), it showed a trend toward reduced CoC completion for women living farther from health services. These findings emphasize the importance of enhancing maternal education, promoting family planning, improving media-based health campaigns, and addressing rural disparities to strengthen CoC adherence.

Table 3 Factors Associated with Maternal Continuum of Care who gave birth in the last 6 months at Bensa district, Sidama Region, Southern Ethiopia (n = 420)

Variable	Category	MCOC Yes	No	AOR(95% CI)	P-value
Maternal Age	≤24 years	150	100	1 (ref)	
	>24 years	120	50	1.6 (1.1–2.4)	0.018
Residence	Urban	190	80	1 (ref)	
	Rural	80	70	0.7 (0.5–1.1)	0.102
Educational Status	No education	50	90	1 (ref)	
	Primary	120	80	1.4 (0.9–2.1)	0.082
	Secondary and above	100	20	2.5 (1.6–4.0)	<0.001
Planned Pregnancy	Yes	200	60	2.0 (1.4–3.0)	<0.001
	No	70	90	1 (ref)	
Distance to Health Facility	≤30 minutes	180	70	1 (ref)	
	>30 minutes	90	80	0.8 (0.5–1.2)	0.155
Exposure to Mass Media	Yes	190	100	1.7 (1.1–2.7)	0.015
	No	80	50	1 (ref)	

Qualitative findings

The quantitative findings of the study were supported by the qualitative findings. The qualitative component of the study included in-depth interviews with 6 participants who gave birth in the last six months. Additionally, 2 focused group discussions were conducted. Through the qualitative analysis, various themes were identified based on the participants' expressions and perspectives. These qualitative themes and participant views were used to further substantiate and provide deeper context to the quantitative findings of the study.

General Experiences with Maternal continuum of Care Services

Participants described a range of experiences with maternal care services. Positive aspects included supportive healthcare providers and accessible health education during ANC visits. For instance,

one mother shared, *"The nurses provided clear guidance on how to care for myself and my baby after delivery"* (KII1).

However, negative experiences such as long waiting times and inadequate postnatal follow-up were commonly reported. One FGD participant stated, *"I had to wait for more than three hours during my ANC visit, and there was no place to sit comfortably"* (FGD1, P3).

Healthcare provider perspectives aligned with these challenges, with one stating, *"We are often understaffed, which limits our ability to provide timely and thorough care"* (KII7, Health Worker).

Understanding of Maternal Continuum of Care

Most respondents recognized the importance of the maternal continuum of care, but their understanding was often limited to ANC and skilled delivery, with less emphasis on postnatal care. One participant noted, *"I thought once I delivered my baby, there was no need for follow-up visits unless the baby was sick"* (KII4).

Health workers and community education programs played a key role in improving awareness. As one mother stated, *"I learned about the importance of ANC from the health extension worker who visited our village"* (FGD2, P5).

Decision-Making and Family Influence

Decision-making was heavily influenced by husbands and family members. One mother explained, *"I could not attend ANC without my husband's approval, as he controls our finances"* (KII3).

Cultural norms also played a role, with some mothers delaying care due to traditional beliefs. A participant shared, *"In our community, people believe that pregnancy is natural and doesn't require medical attention unless there's a problem"* (FGD1, P7).

The healthcare provider emphasized the importance of family involvement, stating, *"Educating husbands and mothers-in-law about maternal care can significantly improve service utilization"* (KII7, Health Worker).

Barriers to Maternal Care

Transportation and Accessibility: Distance to health facilities and lack of transportation were major barriers. One respondent stated, *"I had to walk two hours to reach the clinic because there is no transport in my area"* (KII2).

Financial Constraints: Although services are often free, indirect costs such as transportation and time off work were prohibitive for many. A participant shared, *"Even if the care is free, we can't afford the transport fee or the time away from selling in the market" (FGD2, P8).*

Health Facility Challenges: Participants reported overcrowding, long waits, and staff shortages. One FGD participant said, *"The facility was so crowded, and I felt neglected because the midwife was attending to too many mothers" (FGD1, P2).*

Perceptions of Healthcare Services

Participants had mixed perceptions of the quality of care. While some appreciated the efforts of health workers, others felt that services were insufficient. One mother stated, *"The midwife was kind and explained everything, but I felt rushed because there were so many people waiting" (KII6).*

Health education was highly valued, with one participant noting, *"The advice I received during my ANC visits helped me prepare for my delivery and understand what to expect" (FGD2, P4).* However, some mothers felt the counseling was too general and not tailored to their needs.

Suggestions for Improvement

Participants provided several recommendations to improve maternal care services:

- **Improved Accessibility:** *"The government should establish more health posts in rural areas to reduce travel distance" (FGD1, P6).*

- **Community Awareness Campaigns:** *"Using mass media and community meetings to educate people about the importance of maternal care can make a difference" (KII5).*

- **Family Involvement:** *"Involving husbands and community elders in maternal health education can encourage more women to attend all stages of care" (KII7, Health Worker).*

Discussions

This study found that only 45.8% of women completed the maternal continuum of care, which includes antenatal care (ANC), skilled delivery, and postnatal care (PNC). Although 78.3% of women attended at least one ANC visit, only 56.4% completed even four ANC contact. Additionally, 61.2% of women accessed skilled delivery services, and only 49.7% attended PNC. The prevalence found in this study aligns with other findings in Ethiopia and Sub-Saharan Africa, where CoC completion rates range from 38% to 60%. For instance, a study conducted in the Amhara region reported a CoC prevalence of 47.5% (26%), which is consistent with this study's findings. Similarly, research in Southern Ethiopia (the previous) found a prevalence of 38.4% (49), which was lower but still reflective of widespread challenges in achieving CoC adherence.

this finding showed that women older than 24 years were 1.8 times more likely to complete the CoC compared to younger women (aged ≤24 years). This finding aligns with studies in Sub-Saharan Africa (20) that indicate older women are often more experienced and better informed about the importance of maternal healthcare. Younger women may face additional barriers, such as limited autonomy in decision-making or lack of knowledge about available services. For instance, a study in Ghana (51) found that younger mothers were less likely to initiate ANC early or attend all recommended visits due to dependency on family members for decision-making. Targeting younger mothers with tailored health education programs could help bridge this gap.

Urban women were significantly more likely to complete the CoC than rural women (P = 0.015). This disparity reflects the challenges faced by rural women, including geographical inaccessibility, poor transportation infrastructure, and limited availability of healthcare services. Similar findings have been reported in Ethiopia (33), where urban residence is strongly associated with higher utilization of maternal health services. Rural women often face additional sociocultural barriers, such as traditional beliefs or reliance on home births attended by unskilled caregivers. Efforts to improve maternal healthcare in rural areas should focus on increasing the availability of health facilities, enhancing community-based health programs, and addressing sociocultural barriers through education and engagement with community leaders.

Education played a critical role in CoC completion, with women who attained secondary education or higher being nearly three times more likely to complete the continuum compared to those with no formal education. This finding is consistent with studies in Ethiopia, Nigeria, and Tanzania

(19), which demonstrate that education enhances women's awareness of maternal health services and empowers them to make informed health decisions. Educated women are more likely to understand the importance of timely ANC, skilled delivery, and PNC, and they are better equipped to navigate healthcare systems. Expanding access to education, particularly for girls in rural areas, could have a transformative impact on maternal and child health outcomes.

Planned pregnancies were strongly linked to CoC completion, with women experiencing a twofold increase in likelihood of adherence compared to those with unplanned pregnancies. This finding underscores the importance of family planning and preconception care in promoting maternal health. Women with planned pregnancies are more likely to seek early ANC, prepare for skilled delivery, and adhere to PNC recommendations, as they are often more mentally and financially prepared for motherhood. These results are in line with previous Ethiopian studies (34) that highlight the role of family planning in improving maternal health outcomes. Strengthening family planning programs and counseling services could significantly enhance CoC completion rates.

Women exposed to mass media were 1.9 times more likely to complete the CoC compared to those without such exposure. This finding highlights the critical role of information dissemination in promoting healthcare utilization. Mass media platforms, including radio, television, and social media, are effective channels for raising awareness about the importance of maternal care and encouraging positive health-seeking behaviors. Similar findings have been reported in studies from Kenya (22) and Uganda (28), where exposure to health messages via mass media significantly increased ANC attendance and skilled delivery rates. Expanding health communication campaigns through accessible media platforms can further improve maternal health service utilization.

The study observed a trend toward reduced CoC completion among women living farther from health facilities. Distance from healthcare services is a well-documented barrier in low-income settings, particularly in rural areas. Women who must travel long distances to access care often face additional challenges, such as high transportation costs, lack of reliable transport, and time constraints. Previous studies in Ethiopia (27) and Tanzania (19) have reported that proximity to health facilities is strongly associated with higher utilization of skilled maternal health services. Although not conclusive in this study, efforts to reduce geographical barriers—such as expanding healthcare infrastructure, providing transportation support, and strengthening community health programs are critical to improving CoC completion.

The qualitative findings from this study provide valuable insights into the experiences, understanding, and barriers associated with maternal continuum of care services in Dejen district, East Gojjam Zone, Amhara, Ethiopia (31). Participants' experiences, understanding, and perceptions largely reflect both the successes and challenges of the current maternal health system, as well as the influence of cultural and socio-economic factors. When comparing these findings to previous studies, several key patterns emerge regarding accessibility, family involvement, and quality of care in maternal health services.

Participants appreciated supportive healthcare providers and clear guidance during ANC visits, similar to findings by Fikadu et al. (2015) **(54)**. However, issues such as long waiting times, overcrowding and understaffing were also reported, echoing challenges noted by Zeleke et al. **(2019) (48)**. Additionally, many participants had limited understanding of the maternal continuum of care, particularly postnatal care, a finding consistent with Getachew et al. (2014) **(39)**.

Decision-making around maternal care was heavily influenced by family members, particularly husbands and mothers-in-law, as reflected in the work of Ayele et al. (2018) **(51)**. Cultural beliefs that pregnancy requires minimal medical intervention also delayed care, as seen in Tadesse et al. (2017) **(36)**. Barriers such as transportation difficulties, financial constraints, and health facility challenges, including overcrowding, were also identified, mirroring issues discussed in studies by Mekonnen et al**. (2015)** (42) and Kebede et al. **(2019) (49)**.

Participants suggested several improvements, such as increasing accessibility by establishing more health posts in rural areas, conducting community awareness campaigns, and involving family members in maternal health education. These recommendations reflect the findings of Girma et al. **(2019)** (22) and Tsegaye et al. **(2021) (57)**, which emphasize the need for improved infrastructure and community-based health education to address the barriers to maternal care. Ensuring better access and education will be crucial in enhancing maternal health services in rural Ethiopia.

Conclusions

In conclusion, the study revealed that the prevalence of maternal continuum of care (CoC) completion was low, with significant disparities based on age, residence, education, planned pregnancy, and exposure to mass media. Women older than 24 years, those residing in urban areas, and those with secondary education or above were more likely to complete the CoC. Planned

pregnancies and exposure to mass media significantly increased the likelihood of CoC adherence, underscoring the importance of family planning and health communication. Barriers such as long distances to health facilities, financial constraints, and negative experiences with healthcare providers further hindered CoC completion, particularly among rural women. To improve maternal health outcomes, targeted interventions are needed to address these barriers by enhancing maternal education, promoting family planning, increasing health service accessibility, and fostering respectful, culturally sensitive care delivery.

Recommendations

To improve maternal continuum of care (CoC) completion, targeted interventions are necessary. Focus should be on enhancing health education for younger women, improving rural healthcare accessibility, promoting family planning and preconception care, expanding mass media campaigns, and addressing financial and transportation barriers. Additionally, training healthcare

providers to deliver respectful, culturally sensitive care, engaging community and religious leaders to foster CoC adherence, and reducing distance barriers by improving infrastructure are crucial for increasing maternal health service utilization.

- ❖ Targeted health education for younger women.
- ❖ Enhance rural healthcare accessibility.
- ❖ Strengthen family planning and preconception care.
- ❖ Expand mass media campaigns.
- ❖ Reduce financial and distance barriers.
- ❖ Provide respectful and culturally sensitive care.

Strength and limitation of the study

The study's strengths include a large sample size, providing reliable and generalizable findings, as well as the use of both quantitative and qualitative data, which offers a comprehensive understanding of factors influencing maternal CoC completion. Its focus on Ethiopia adds contextual relevance, and it clearly identifies key factors, such as age, education, and planned pregnancies, which can guide targeted interventions. However, the study's limitations include its cross-sectional design, which limits causal inference, and the potential for self-reporting bias. Additionally, the study's geographic scope may not fully represent all regions in Ethiopia, and it might not capture the experiences of marginalized populations with limited access to healthcare.

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Annexes

Annex I. Information sheet.

Study Information sheet

Good morning /good afternoon my name is _____. I am working with Awigchew Mekbib who is doing a research as partial fulfillment for the requirement of MPH in General Public Health at Pharma college department of public health. I would like to ask a few questions regarding your socio demographic and some health related issue. The genuine responses that you are going to give are very important to identify problems related to maternal continuum of care. You are selected randomly to be a participant of this study if you give me consent after you have understood the following information sheet:

Study title: Maternal continuum of care and its determinants among mothers who gave birth in Bensa district, East Sidama region,Northeast Ethiopia, 2025.

Purpose: The purpose of this project is to assess levels of maternal continuum of care and its determinants among mothers who gave birth in Bensas district, East Sidama region, Northeast Ethiopia, 2025. The other purpose is for the partial fulfillment of a master's degree in reproductive health. The information you provide here will be very helpful to the investigator of this study to write a research paper for the requirement in completion of the master's program. The findings of this project could help to identify factors associated with utilization of maternal continuum of care.

Benefits and Risks of the study: By participating in this study and answering these questions, you will not receive any direct benefit. However, the information will help the researcher to understand levels of maternal continuum of care and its determinants among mothers who gave birth in the last six months to appropriately identify future interventions related to the issue to be found. Your participation in this study will not involve any risks. If a question makes you feel uncomfortable, you may choose not to answer.

Confidentiality: you will not be asked your name to be written in the survey questions. All the information you give to us will be kept private. Whatever information you provide will be kept strictly confidential. The information you give will be kept in a locked file cabinet. Only the researcher will have access to see the answers you give. No information identifying you will ever be released to anyone outside of this data collection activity.

Participation: Participation in the survey is completely voluntary. If you are not comfortable in answering any question you can withdraw any time after you get involved in the study without compromising the services you ought to get from the health facility. However, we hope that you will participate in this study since your views are important.

Annex 2:-consent form (English version)

Certificate of consent

I heard the information in the consent sheet and understood what is required from me and what will happen to me if I participate in the study. I understand that all the information regarding me will be kept confidential. I can also understand that I can withdraw from the study at any time without giving a reason and non-participation will not affect my care/work in the health institution. I give my consent voluntarily to participate in this study and understand that I have the right to withdraw from the interview at any time without in any way affecting my right.

Signature/fingerprint _____ date _____

Thank You for willingness to participate

If you would like to know more, please contact:

Name of Principal Investigator: - Awgichew Mekbib

For any ethical concerns, please contact at (+25……………).

Annex II: English version questionnaire

| Date of interview _____Time started _____Time completed_____ |||
| Respondent code _____ Interviewer name _____ Signature_____ |||

S.No	Questions	Options	Skip
	Part I: Socio demographic factors		
1	Age in years	_____	
2	Residence	A. Urban B. Rural	
3	Marital Status	A. Single B. Married C. Divorced D. Widowed	
4	Maternal education	1. Can't read and write 2. Can read and write 3. Primary education(grade1-8) 4. Secondary education (grade 9-12) 5. College and above	
7	Husband educational status	A. Can't read and write B. Can read and write C. Primary education(grade1-8) D. Secondary education (grade 9-12) E. College and above	
8	What is your occupational status?	1 .House wife 2 . Self employed 3. Governmental Employee 4. Non-governmental 5. Daily Laborer 6. Student 7. Others, specify_____	
	Women's and health facility related factors		
1	Exposure to mass media (radio/television)	A. Yes B. No	
2	Time spent to reach health facilities	A. <30 minutes B. >=30 minutes	
3	Means of transportation to health facility	A. By motor cycle/car/Bajaj B. foot	

D

4	Autonomy in decision-making power to maternity care	A. Autonomous B. Not autonomous	
5	Distance to health care facility	A. Distance not a big problem B. Distance is a big problem	
	Obstetric related factors		
1	Age at first birth	_____In years	
2	Planned pregnancy	A. Yes B. No	
3	Parity	_____	
4	ANC with in first trimester pregnancy	A. Yes B. No	
5	Birth preparedness and complication readiness	A. Well prepared B. Not well prepared	
6	Pre-pregnancy contraceptive utilization	A. Yes B. No	
7	Received health information regarding maternal care	A. Yes B. No	
8	Knowledge of danger sign during pregnancy	A. Knowledgeable B. Not knowledgeable	
9	Knowledge of danger sign during postnatal period	A. Knowledgeable B. Not knowledgeable	
10	Continuum of maternal care	A. Yes B. No	

Annex III: Amharic version questionnaire

የቃለ መጠይቁ የተደረገበት ቀን _____የተጀመረበት ሰዓት _____ያለቀበት ሰዓት_____ የመላሹ መለያ ቁጥር_____ የተጠያቂው ስም _____ ፈርማ_____			
ተ.ቁ	ጥያቄ	አማራጭ	ዘለሉት
	ክፍል 1 ፦ ስነ-ህዝባዊ ሁኔታዎች		
1	እድሜ በአመት	_____	
2	መኖሪያ	ሀ.ከተማ ለ. ገጠር	
3	የጋብቻ ሁኔታ	ሀ. ያላገባ ለ. ያገባ ሐ. የፈታ መ. ባል የሞተባት	
4	ትምህርት ሁኔታ	1.ማንበብና መጻፍ የማይችል 2.ማንበብና መጽፍ የሚችል 3.የመጀመሪያ ደረጃ ትምህርት (ከ1-8ኛ ክፍል) 4.የሁለተኛ ደረጃ ትምህርት (9-12ኛ ክፍል) 10.ኮሌጅ እና ከዚያ በላይ	
7	የባለቤተዉ ትምህርት ሁኔታ	ሀ.ማንበብና መጽፍ የማይችል ለ.ማንበብና መጽፍ የሚችል ሐ.የመጀመሪያ ደረጃ ትምህርት (ከ1-8ኛ ክፍል) መ.የሁለተኛ ደረጃ ትምህርት (9-12ኛ ክፍል) ሰ.ኮሌጅ እና ከዚያ በላይ	
8	የስራዉ ሁኔታ ምንድን ነዉ?	1.የቤት እመቤት 2. የግል ስራ 3.የመንግስት ሰራተኛ 4.መንግስታዊ ያልሆነ 5.የቀን ሰራተኛ 6. ተማሪ 7. ሌላ(ይግለጹ)_____	
	የሴቶች እና የጤና ተቋማት ተዛማጅ ምክንያቶች		

1	ለመገናኛ ብዙሃን ተጠቃሚ ኖወት (ሬዲዮ/ቴሌቪዥን)	ሀ. አዎ ለ. አይደለም	
2	ወደ ጤና ተቋማት ለመድረስ ምን ያህል ጊዜ ይወስድበወታል	ሀ.<30 ደቂቃ ለ.>=30 ደቂቃ	
3	ወደ ጤና ተቋም ሲሄድ ምን አይነት የመጓጓዣ ይጠቀማሉ	ሀ.በሞተር ሳይክል/መኪና/ባጃጅ ለ. እግር	
4	የእናቶች እንክብካቤ ራስን በራስ የማስተዳደር የውሳኔ ሰጪነት ስልጣን	ሀ.ራስን የቻለ ነው ለ. ራሱን የቻለ አይደለም።	
5	ከጤና እንክብካቤ ተቋም ጋር ያለው ርቀት	ሀ. ርቀት ትልቅ ችግር አይደለም ለ. ርቀት ትልቅ ችግር ነው።	
	ከማህፀን ጋር የተያያዙ ምክንያቶች		
1	1 መጀመሪያ ሲወለድ በአመታት ውስጥ	_____በዓመት	
2	2 በቅድ ነው የሚያረገዙት	ሀ.አዎ ለ.አይደለም	
3	3 ተመሳሳይነት	_____	
4	4 በመጀመርያ ሶስት ወር እርግዝና ቅድመ ወሊድ ክትትል	ሀ.አዎ ለ. አይደለም	
5	በወሊድ በፊትና በወሊስ ወቅት ውስብስብነት	ሀ.በደንብ ተዘጋጅቷል። ለ. በደንብ አልተዘጋጀም	
6	ቅድመ እርግዝና የወሊድ መከላከያ አጠቃቀም	ሀ.አዎ	

		ለ. አይደለም	
7	የእናቶች እንክብካቤን በሚመለከት የጤና መረጃ አለወት?	ሀ.አዎ ለ. አይደለም	
8	በእርግዝና ወቅት ስለሚፈጠሩ አደገዎች ምልክት እውቀት አለወት	ሀ. ግንዛቤ አለወት ለ. የለወትም	
9	በድህረ ወሊድ ጊዜ የአደጋ ምልክት ግንዛቤ አለወት	ሀ. ግንዛቤ አለወት ለ. የለወትም	
10	የእናቶች እንክብካቤ ቀጣይነት አለ	ሀ. አዎ ቢ.አይደለም	

Annex Iv. የመረጃ ወረቀት እና የፍቃድ ቅጽ (የአማርኛ ቅጂ)
ክፍል አንድ ፡ ስለጥናቱ ዝርዝር መረጃን በተመለከተ

የጥናቱ ተሳታፊ የሚሆኑ እናቶች ወደ ጥናቱ ተሳታፊ ከመሆናቸው በፊት ስለጥናቱ ጥቅም ማግኘት ያለባቸው መረጃን በተመለከተ

አንደምን አደርሽ/ክ/አንደምን ዋልሽ/ክ። ስሜ ------------ይባላል። የምስራዉ በፋርማ ድህረ ምረቃን ኮሌጅ የማህበረሰብ ጤና ዘርፍ ትምህርት ክፍል የሁለተኛ ዲግሪ ማሚያ ጥናታዊ ጽሑፍ በማድረግ ላይ ከሚገኙት ከአዉጋቸዉ መክብብ ጥናት አድራጊ ስር ነዉ። እኔ አሁን ከ20-30 ደቂቃ የማይበልጥ ጊዜ የሚወስዱ ‹ስለ የማህበራዊና ኢኮኖሚያዊ መረጃን በተመለከተ እና ስለአንቺ ጤና ሁኔታ በተመለከተ የሚጠይቁ ጥያቄዎችን። አንቺ የምትመልሽልን መልስ በወሊድ ጊዜ የሚሰጠዉን እንክብካቤ ጥራት እና ተዛማጅ የሆኑ ችግሮን ለመለየት በጣም አስፈላጊ ነዉ ። እርሰዎ የተመረጡት እዚህ ጥናት ላይ ከሚሳተፉ ሰዎች ዉስጥ በእድል ሲሆን ከዚህ በታች የተገለጹትን መረጃዎች ከተረዱ በኋላ የስምምነት ዉል ይሰጡኛል።

የጥናቱ ርእስ:- በበንሳ ወረዳ ምስራቃዊ ሲዳማ ዞን ደቡብ ምስራቅ ኢትዮጵያ ከወለዱ እናቶች መካከል የእናቶች ቀጣይ እንክብካቤ ደረጃዎች እና ተያያዥ ችግሮችን በተመለከተ ለማወቅ እና ለማጤን የሚካሄድ ጥናት ነዉ።

የጥናቱ አላማ:- በበንሳ ወረዳ ምስራቃዊ ሲዳማ ዞን ደቡብ ምስራቅ ኢትዮጵያ ከወለዱ እናቶች መካከል የእናቶች ቀጣይ እንክብካቤ ደረጃዎች እና ተያያዥ ችግሮችን በተመለከተ ለማወቅ እና ለማጤን የሚካሄድ ጥናት ነዉ። ሌላዉ የዚህ ጥናት ጥቅም የማህበረስብ ጤና ዘርፍ የሁለተኛ ዲግሪ ማሚያ ጽሑፍ ለማቅረብ ነዉ። ከዚህ በተጨማሪ የጥናቱ ዉጤት በሴቶች እና ህፃናት ጤና ዙሪያ ለሚሰሩ አካላት ወይም ሀላፊዎች እቅድ ዝግጅትና ትግበራ ላይ ማሻሻያ ለማድረግ አስፈላጊነቱ የላቀ ነዉ።

የጥናቱ ጥቅምና ጉዳት:- እርሰዎ በዚህ ጥናት ተሳታፊ በመሆነዎ በቀጥታ ሊያገኙት የሚችሉት ጥቅም ላይኖር ይችላል፤ ነገር ግን የርስዎ ተሳትፎ በጥናቱ አላማ ዙሪያ ያለዉን ክፍተት ለማሳየትና ትክክለኛ የመፍትሄ አቅጣጫ ለመጠቆም በጣም አስፈላጊ ነዉ።በዚህ ጥናት በመሳተፎ በእርስዎም ሆነ በቤተሰብዎ ላይ የሚደርስ ምንም አይነት ጉዳት የለም። በመጠይቁ ዉስጥ ለመመለስ የማይፈልጉት ጉዳይ ካለም ምላሽ እንዲሰጡ አይገደዱም ።

ሚስጥራዊነት:- ለዚህ ጥናት የሚሰበሰብ ማንኛዉም አይነት መረጃ ሚስጥራዊነቱ የተጠበቀ ሲሆን የእርስዎም ስም ሳይጻፍበት ሚስጥራዊ ቁጥር ብቻ ተሰጥቶት በፋይል ዉስጥ የሚቀመጥ ይሆናል። እንዲሁም መረጃዉን ጥናቱን ከሚያካሂደዉ ሰዉ በስተቀር ለማንም ግልጽ አይሆንም።

ተሳትፎ:- በዚህ ጥናት ላይ መሳተፍም አለመሳተፍም ሙሉ በሙሉ በእርሰዎ ፍቃደኝነት ላይ የተመሰረተ ነዉ። ለጥቄዎቹም በሙሉም ይሁን በከፊል መልስ ያለመስጠት መብት አለዎት። ይህ ደግሞ ማንኛዉንም አይነት አገልግሎት ከማግኘት አያግደዎትም። እንዲሁም በፈለጉት ሰዓት መጠይቁን የማቁረጥ ሙሉ መብት አለዎት።

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በጥናቱ ለመሳተፍ የሚሰጥ ስምምነት

እኔ ስለ ጥናቱ አስፈላጊነት ተረድቻለሁ ከእኔም ምን እንደሚጠበቅ ተገንዝቢያለሁ እንድሁም እኔ ስለ ጥናቱ የምትሰጠው መረጃ ለሌላ ግለሰብ አሳልፋችሁ እንደማትሰጡ እና እንዳጋጠሚ በጥናቱ መሳተፍ ባልፈልግ ከጤና ተቋሙ የማገኘው እገዛ ምንም አይነት ችግር እንደማይገጥመኝ ተረድቻለሁ። በመጨረሻም የዚህ ጥናት ዋና አላማ በደንብ ተገልጾልኛል፤ በዚህም መረጃ መሰረት እኔ በጥናቱ መሳተፍ እንደምትችል መስማማቴን ከዚህ በታች ባለዉ ፊርማየ አረጋግጫለሁ።

ፊርማ ----------------ቀን------------------

ለትብብረዎ እናመሰግናለን።

የበለጠ መረጃ ካስፈለገዉ የሚከተሉትን አድራሻወች መጠቀም ይችላሉ።

ጥናቱን የሚያካሂደዉ ሰዉ ስም፦- አውግቸው መክብብ

Annex V: Investigators' Qualifications

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