



INSTITUTE OF MEDICINE AND HEALTH SCIENCE, COLLEGE OF  
HEALTH SCIENCE, DEPARTMENT OF PUBLIC HEALTH

COMPLETION OF MATERNITY CONTINUUM OF CARE AND ASSOCIATED  
FACTORS AMONG WOMEN WHO GAVE BIRTH IN THE LAST 12 MONTHS  
IN DEBRE BERHAN TOWN, NORTH SHEWA, AMHARA, ETHIOPIA, 2020.

BY: MICHAEL AMERA (BSc)

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NAME OF INVESTIGATOR	MICHAEL AMERA
NAME OF ADVISORS	MR. NIGUSSIE T. (MSC, Assistant Prof.), TADESSE M. (BSC, MPH/RH)
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ADDRESS OF INVESTIGATOR	CELLPHONE: 0911369096 email: <a href="mailto:michaelamera12@gmail.com">michaelamera12@gmail.com</a>

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Declaration

To be approved by the Examining Board of College of Health Science, Debre Berhan University

<u>Michael Amera</u>		<u>7/24/ 2020 G.C</u>
Principal Investigator Name	Signature	Date
<u>Nigussie Tadesse</u>		<u>7/24/2020 G.C</u>
Main Advisor Name	Signature	Date
_____	_____	_____
External Examiner Name	Signature	Date
_____	_____	_____
Internal Examiner Name	Signature	Date
_____	_____	_____
Chairperson, Examining Board	Signature	Date

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# Table of Contents

Acknowledgment .....	III
Table of Contents .....	IV
List of Tables .....	VI
List of Figures .....	VII
List of Abbreviations and Acronyms .....	VIII
Abstract .....	IX
1. Introduction.....	1
1.1 Background.....	1
1.2 Statement of the Problem.....	2
1.3 Significance of the Study .....	3
2. Literature Review.....	4
2.1 Coverage of maternity continuum of care.....	4
2.2 Factors associated with maternity continuum of care .....	4
2.2.1 Socio-demographic factors .....	4
2.2.2 Reproductive and Obstetrics related factors .....	5
2.2.3 Maternal health service-related factors .....	6
3. Objectives .....	9
3.1 General Objective .....	9
3.2 Specific Objectives .....	9
4. Methods .....	10
4.1 Study area.....	10
4.2 Study design and period.....	10
4.3 Source population .....	10
4.4 Study population .....	10

4.5 Inclusion and exclusion criteria .....	10
4.5.1 Inclusion Criteria.....	10
4.5.2 Exclusion Criteria .....	10
4.6 Sample size determination .....	11
4.7 Sampling technique.....	12
4.8 Data collection methods and procedures .....	13
4.9 Variables .....	13
4.10 Operational definitions.....	13
4.11 Data quality assurance .....	14
4.12 Data processing and analysis .....	14
4.13 Ethical consideration.....	15
4.14 Dissemination of results.....	15
5. Results.....	16
6. Discussion.....	24
7. Conclusions.....	27
8. Recommendations.....	27
References.....	28
Annexes .....	32
Annex I: English Version Information Sheet and Consent Form .....	32
Annex II: English Version Questionnaires .....	33
Annex III: Amharic Version Information Sheet and Informed Consent Form .....	37
Annex IV: Amharic version questionnaires.....	38

## List of Tables

Table 1: Sample size calculation for factors associated with the completion of the maternity continuum of care among women who gave birth in the last 12 months. ....	11
Table 2: Socio-demographic characteristics of study participants in Debre Berhan Town, North Shewa, Amhara, Ethiopia 2020(n=647). ....	17
Table 3: Reproductive and Obstetrics characteristics of study participants in Debre Berhan Town, North Shewa, Amhara, Ethiopia, 2020(n=647).....	18
Table 4: Maternal health service-related characteristics of study participants in Debre Berhan Town, North Shewa, Amhara, Ethiopia, 2020(n=647).....	19
Table 5: Bivariable and multivariable logistic regression analysis of factors associated with the completion of maternity continuum of care in Debre Berhan Town, North Shewa, Amhara, Ethiopia, 2020(n=647). ....	23

## List of Figures

Figure 1: a conceptual framework shows the relationship between completion of maternity continuum of care and explanatory variables adapted from different works of literature(3,8,13–19). .....	8
Figure 2: Schematic presentation of the sampling procedure (note: k-kebele).....	12
Figure 3: Proportion of women completing the maternity continuum of care along the continuum care pathway in Debre Berhan Town, Ethiopia 2020.....	21



## List of Abbreviations and Acronyms

ANC	Antenatal Care
AOR	Adjusted Odds Ratio
BPCR	Birth Preparedness and Complication Readiness
CI	Confidence Interval
CoC	Continuum of Care
COR	Crude Odds Ratio
EDHS	Ethiopia Demography and Health Survey
EMDHS	Ethiopian Mini Demographic and Health Survey
HSTP	Health Sector Transformation Plan
MMR	Maternal Mortality Ratio
MNCH	Maternal Newborn and Child Health
PNC	Postnatal Care
SBA	Skill Birth Attendant
TT	Tetanus Toxoid
UN	United Nation
WHO	World Health Organization

## Abstract

**Background:** The maternity continuum of care is the continuity of maternal health care services that a woman uses antenatal care, skill birth attendant, and postnatal care. It is a critical strategy for reducing maternal and newborn mortality and morbidity. Despite this, Millions of women around the globe still do not receive the maternal health care services they need to survive pregnancy and succeed.

**Objective:** the objective of this study was to assess the completion of maternity continuum of care and associated factors among women who gave birth in the last 12 months in Debre Berhan Town, North Shewa, Amhara, Ethiopia, 2020.

**Methods:** a community-based cross-sectional study was conducted from February 17-March 15/2020 and cluster sampling was used for the selection of respondents. Data were collected through face to face interviews with pre-tested structured questionnaires by trained data collectors. Data were entered into Epi-data software version 3.1 and then exported to SPSS version 21 statistical package for analysis. Logistic regression was performed to analyze the data. In multivariable analysis, a significant association was declared a p-value of less than 0.05 to determine factors associated with the completion of the maternity continuum of care.

**Results:** A total of 659 participants were found from the selected clusters for this study and 647 were interviewed. In this study, the proportion of women who completed the maternity continuum of care was 37.2% with 95% CI (33.4-41.1). In the multivariable logistic regression analysis, completing primary education (AOR: 2.732, 95% CI: 1.169-6.383), secondary education (AOR: 3.106, 95% CI: 1.320-7.308), college and above educational level(AOR: 4.149, 95% CI: 1.798-9.572), initiation of first ANC visit  $\leq 16$ wks(AOR: 2.566, 95% CI: 1.407-4.682), knowing pregnancy danger signs(AOR: 1.914, 95% CI: 1.147-3.195), and well prepared on birth and complication readiness (AOR: 1.598, 95% CI: 1.101-2.320) were positively associated with the completion of maternity continuum of care.

**Conclusion and recommendations:** The proportion of women who complete the maternity continuum of care was low in Debre Berhan town. Therefore, due attention should be given to those factors that positively associated with the completion of maternity continuum of care such as maternal education, advising on pregnancy danger signs, initiation of ANC at  $\leq 16$ wks and birth preparedness and complication readiness plan.

**Keywords:** completion, Ethiopia, maternity continuum of care

# 1. Introduction

## 1.1 Background

Millions of women around the globe still do not receive the maternal health care services they need to survive pregnancy and succeed(1). The global estimates for the year 2017 indicate that there were 295 000 maternal deaths; from this, Sub-Saharan Africa and Southern Asia accounted for approximately 86% of the estimated global maternal deaths in 2017 with sub-Saharan Africa alone accounting for roughly 66%, while Southern Asia accounted for nearly 20%(2). Most maternal deaths suffered each year are preventable(1). Similarly in Ethiopia, despite the progressive increase in coverage of maternal newborn and child health (MNCH) service in the last 25 years, the 2016 Ethiopian demographic and health survey (EDHS) report revealed that high rate of maternal mortality ratio (412 maternal deaths per 100,000 live births)(3).

The maternity continuum of care is defined as the continuity of maternity health care services that a woman uses antenatal care (ANC), skill birth attendant (SBA), and postnatal care (PNC)(4). It is one of the critical strategies for reducing maternal and newborn mortality and morbidity(5). The continuum of care is an integrated service of care composed by time and space dimensions that women and children are required to avail continuously(6). Moreover, WHO promoted for; first care to be provided as a continuum throughout the lifecycle including adolescence, pregnancy, childbirth, and childhood; and second in a seamless continuum that spans the home, community, and health facilities(7). The health care services that a woman receives during pregnancy, childbirth, and the immediate postnatal period are important for the survival and well-being of both the mother and the child. ANC, the use of SBA, and PNC services are key maternal health services that can significantly reduce maternal mortality(8).

## 1.2 Statement of the Problem

Despite substantial progress over the last two decades, inadequate or non-existent care during pregnancy and delivery was largely responsible for the annual deaths of an estimated 295,000 mothers in 2017(5). To reduce maternal mortality to 267 per 100,000 live births, a set of high impact interventions were being implemented, including ANC, SBA, and PNC. The impact-level targets of health sector transformation plan (HSTP) by 2020 is to reduce maternal mortality ratio (MMR) to 199/100,000LB(9). By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births is one of the sustainable development goals (goal 3.1)(10).

Globally 86% of pregnant women access antenatal care with skilled health personnel at least once, only two in three (65%) receive at least four antenatal visits in 2018. In regions with the highest rates of maternal mortality, such as Sub-Saharan Africa and South Asia, even fewer women received at least four antenatal visits (52% and 49% respectively) and just over half of all births (57 percent) were delivered in a health facility in Sub-Saharan Africa(5). In our country Ethiopia, trends of reproductive health indicators from 2000-2014 showed that even though there is a significant improvement of maternal health care services utilization, the gap in the continuum of maternal health care services remains remarkably high(11). According to EDHS 2016 report, out of all reproductive-aged women, 62% received ANC and 28% had SBA, among women, gave birth in the 2 years before the survey, 17% had a postnatal check(3). Similarly, the 2019 Ethiopian mini-demographic and health survey(EMDHS) report indicated that 74% received antenatal care, 50% had skilled birth attendant and 34% had postnatal checkups (12).

This showed that there is a significant drop-out through maternity continuum of care and still little progress has been made in closing the gap between the levels of maternal health care services. This default in a continuity of care constitutes missed opportunities and a risk factor for poor maternal health outcomes. Despite this, a large number of pregnant women did not complete the recommended maternal health services in Ethiopia including Debre Berhan town. Besides, there is limited knowledge or scarcity of research about the proportion of mothers who completed the continuum of care and the factors that enhance the completion of maternity care in Debre Berhan town. Identifying the factors that affect the maternity continuum of care helps to design appropriate strategies and policies towards the improvement of service utilization and thereby reduce maternal mortality.

### 1.3 Significance of the Study

Ethiopia shows substantial progress in improving maternal health indicators during the last decade, although more efforts are still required to save the lives of mothers. Extensive literature focusing on the context of Ethiopia is available, which explores the various influencing factors regarding the use of individual maternal health services, particularly for antenatal care and skilled birth attendant.

Nevertheless, this research is unique as it focuses on the completion of a continuum of care for maternal health. Determining the proportion of mothers who complete the continuum of care and identifying the factors that enhance the completion of maternity continuum of care helps for the programmers, policymakers, and stakeholders to integrate the continuum of care and to promote the enabling factors in the community. Thus, the integration of maternal health services leads to an improvement in the satisfaction level, reduces costs, and improves health. So, the objective of this study was to determine the proportion of women who complete the continuum of care and to identify the factors associated with maternity Continuum of care in North Shewa, Debre Berhan, Ethiopia.

## 2. Literature Review

### 2.1 Coverage of maternity continuum of care

A study conducted in nine countries of South Asia and Sub-Saharan Africa using recent demographic and health survey data, completion of maternity continuum of care (CoC) was 25% and 14% respectively (13). Continuum of care completion rate has improved from 15% to 27% amongst women in Pakistan over time from 2006 to 2012 (14). A study conducted in Cambodia 60% women received all three types of maternal care; antenatal care, skilled birth attendance at birth, and postnatal care -for their most recent birth (15). In Nepal, 45.7% of women complete the maternity continuum of care (8).

In Ghana Only 8.0% women completed the maternity continuum of care; the greatest gap and contributor to the low CoC was identified between delivery and postnatal care within 48 hours postpartum (16). Only 10% of women received the 'recommended' care package (4+ANC visits, SBA, and 1+PNC visit) in Tanzania (17). The study conducted in Egypt shows that 50.4% of the participants had completed the maternity continuum of care (18). Only 9.1% of women had accomplished the maternity continuum of care in Ethiopia and 48.7% of women attain the completion of the maternity continuum of care in the Amhara region (19).

### 2.2 Factors associated with maternity continuum of care

#### 2.2.1 Socio-demographic factors

A study done in nine countries of South Asia and Sub-Saharan Africa showed, Older women had significantly higher odds of receiving some or all of the elements of the continuum of care compared to younger women (13). In Egypt study revealed that females who gave birth at the age of 20–35 years were significantly associated with CoC (18). A study finding from spatial patterns and determinants of PNC use in Ethiopia shows that Women aged 35–49 years were more likely to use PNC (20).

Respondents with higher educational status had greater odds to accomplish a complete maternity continuum of care than their counterparts (14). A study done in Nepal shows that primary education, secondary education, and college and above had greater odds to complete maternity CoC compared to non-educated women (8). Women whose partners had tertiary education were about three times more likely to complete CoC (16). Higher educational levels and they are

working with highly educated husbands were more likely to achieve CoC (18). Further analysis of EDHS 2016 shows that Mothers who completed secondary and tertiary levels of education had 2.9 times the odds of health facility delivery compared with mothers without formal education(21). A study done on the mismatch between antenatal visit and institutional delivery in the South of Ethiopia shows that attending secondary school and above were among the independent predictors negatively associated with non-institutional delivery(22). A study conducted in Ghana shows that maternal educational status of secondary school and above were positively associated with PNC service utilization(23). Women with no education were less likely to use postnatal care(20).

Women formally employed had higher odds of completing the continuum of care(19). Being a government employee were among the independent predictors positively associated with institutional delivery(22).

A study conducted in South Asia and Sub Saharan Africa shows that; Compared to women in the poorest wealth quintile, women in the richest wealth quintile had significantly greater odds of getting all of the elements of the continuum versus none(13). Belonging to the richest quintile in Pakistan was more likely to accomplish complete CoC(14). In Cambodia's highest wealth quintile were more likely to attain complete CoC (15). It was found that women from richer households are more likely to complete the maternity continuum of care than women from poorer households in Nepal(8). In Tanzania, Women from the richest tertile of communities were more likely to come back for PNC(17). In Egypt, Participants belonging to the high socioeconomic status found greater to achieve complete CoC (18). A study finding from spatial patterns and determinants of PNC use in Ethiopia shows that Women in the poorest wealth quintile were less likely to use PNC(20). A study conducted in Debre tabor town shows that family monthly income of above 1500 ETB was positively associated with PNC service utilization(24).

A study done in Nepal, Pakistan, and Egypt indicated that respondents who had information on maternal health services were found higher to achieve complete CoC respectively(8,14,18).

### 2.2.2 Reproductive and Obstetrics related factors

Women of higher parity had significantly lower odds of receiving some or all of the elements of the continuum of care compared to primi parous women(13). Having 1–2 children and low birth order were found greater to attain complete CoC(18). The odds of finalizing continuum of care was more likely among those women with six or more birth order(19). Women who said that they

did not want the pregnancy at the time but later were about twice more likely to complete CoC compared to those who said they wanted the pregnancy at the time(16). A study conducted in Debre tabor town shows that, planned and supported last pregnancy were positively associated with PNC service utilization(24).

A multilevel analysis conducted in 28 African countries indicated that the odds of retaining in SBA were higher among mothers who attended at least 4 ANC visits(25). A study finding from spatial patterns and determinants of PNC use in Ethiopia shows that Women with at least four antenatal care (ANC) visits were more likely to use PNC(20). The odds of initiating the first antenatal care visit late was higher for women who did not know the antenatal care starting schedule correctly compared to women who knew the schedule correctly (26).

### 2.2.3 Maternal health service-related factors

Maternal health services during antenatal care, such as blood pressure measured, informed about pregnancy complications, and received tetanus injection was associated with the completion of the continuum of care(19). A urine sample taken during antenatal care in Cambodia(15)and urine and blood samples were taken and blood pressure was measured in Egypt were more likely to achieve CoC(18). A multilevel analysis conducted in 28 African countries indicated that the odds of retaining in SBA were higher among ANC clients that had their blood pressure checked, received information about pregnancy complications, had blood tests conducted, and had urine tests conducted(25).

A case-control study conducted in Bale Zone, Goba district shows that mothers who had stated obstetric complications in the recent pregnancy and/or childbirth and/or postpartum period were more likely to deliver in health facilities than mothers who hadn't faced complications(27). Women who well prepared for birth and complication ahead of the last delivery were more than two and half times more likely to deliver in health institutions than those women who were not well prepared(27). Similarly, other study shows that women who prepared money for delivery were more likely to accomplish coc, however, women who experienced any complications during pregnancy, delivery or postnatal were less likely to achieve coc(23).



A study conducted in Debre tabor town shows that institutional delivery of last pregnancy was positively associated with PNC service utilization(24). Systematic review and meta-analysis done in Ethiopia show that mothers who reported antenatal care use were about four times more likely to attend postnatal care service(28). Birth preparedness is one of the critical factors in defining the likelihood of having institutional delivery and postnatal checkups(29). Women who gave birth in a health facility had higher odds of completing the continuum of care (19). Getting advice from a community health worker about PNC increased the odds by more than 4 times (17).

The maternity continuum of care has a plethora of advantages; that is why different scholars tried to address the issue and factors associated with it. From the overall literature review; the highest coverage of maternity coc was 60% in Cambodia and the lowest coverage was 8% in Ghana. The respondent's age, educational status, essential ANC components, occupational status, parity, and wealth status were the factors associated with the maternity coc. But some variables were not addressed in previous studies like husband/partner along with maternal visit, birth preparedness, and complication readiness, and counseling on when to return for revisit and maternity CoC is not well addressed in the study area as well as in Ethiopia.

## Conceptual framework

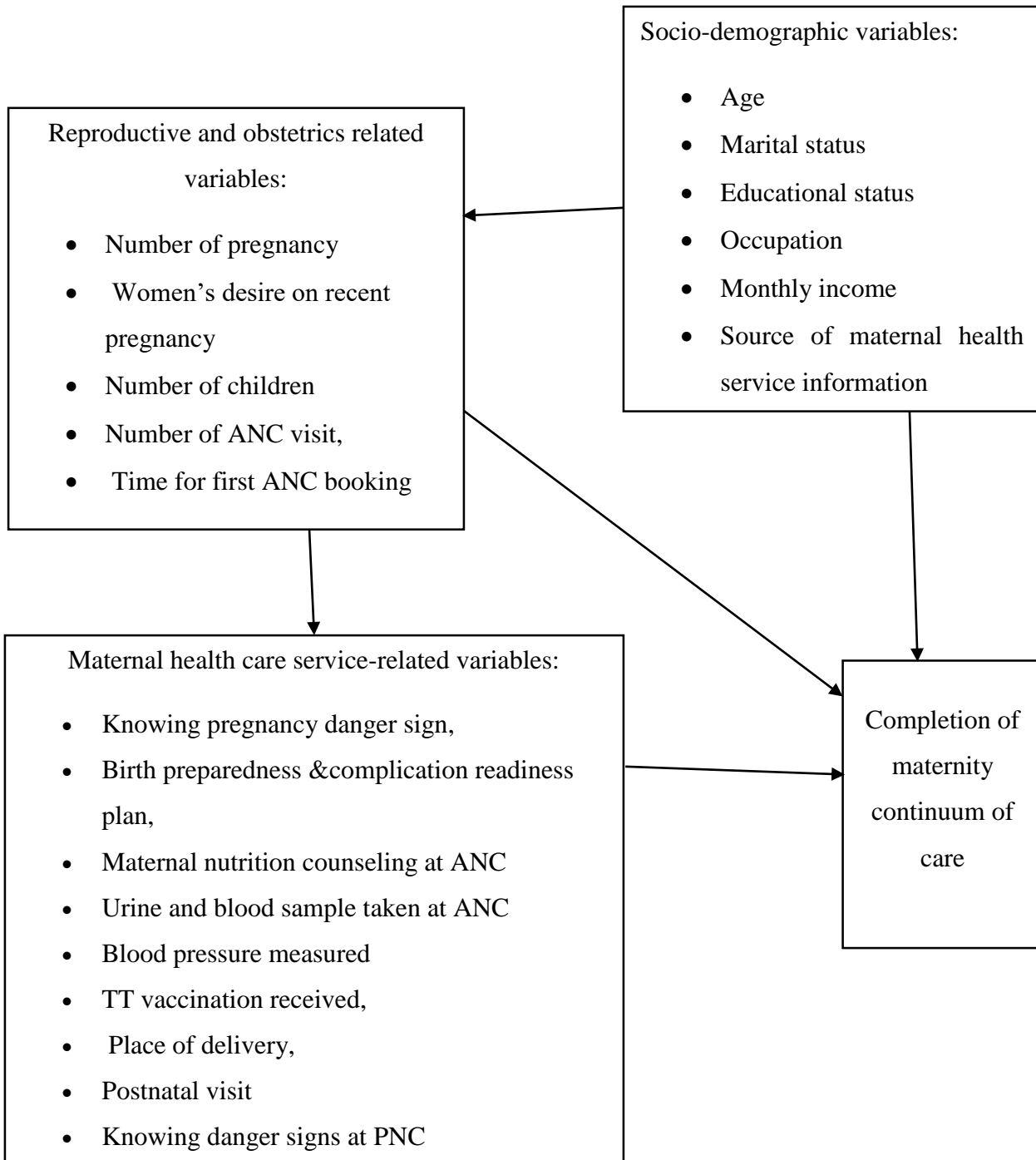


Figure 1: a conceptual framework shows the relationship between completion of maternity continuum of care and explanatory variables adapted from different works of literature(3,8,13–19).

### 3. Objectives

#### 3.1 General Objective

- To assess the completion of maternity continuum of care and associated factors among women who gave birth in the last 12 months in Debre Berhan Town, North Shewa, Amhara, Ethiopia, 2020.

#### 3.2 Specific Objectives

- To determine the proportion of women who completed the maternity continuum of care among women who gave birth in the last 12 months.
- To identify factors associated with the completion of the maternity continuum of care among women who gave birth in the last 12 months.

## 4. Methods

### 4.1 Study area

The study was conducted in Debre Berhan town, which is located in the North Shewa Amhara Region, 130kms to the north of Addis Ababa, the capital city of Ethiopia. According to Amhara national state Debre Berhan Town administration mayor office 2019 report, the town consists of nine kebeles(the smallest administrative unit) with an estimated total population of 114,652(Male=51,843 and Female=62,809). From 62,809 female population, 39,066 were within the age group of 15-49. The town has four public (one referral hospital and three health centers) and three private health institutions which have had MNCH units and also services.

### 4.2 Study design and period

A community-based cross-sectional study was conducted from February 17 to March 15/2020 among individuals in selected kebeles.

### 4.3 Source population

The source population for this study were all women who gave birth in the last 12 months in Debre Berhan town.

### 4.4 Study population

The study population for this study were those who gave birth in the last 12 months in the selected kebeles of Debre Berhan town.

### 4.5 Inclusion and exclusion criteria

#### 4.5.1 Inclusion Criteria

Mothers who gave their most recent birth in the last 12 months, who had booked for ANC and those who were at six weeks or more after birth at the time of data collection were included.

#### 4.5.2 Exclusion Criteria

Women who reside in the study area for less than six months at the time of data collection were excluded from the study.

#### 4.6 Sample size determination

The sample size for this study was calculated using the assumptions for single population proportion with estimated proportion of completion of maternity continuum of care 48.7% in Amhara region from a cross-sectional study which was analyzed from the 2016 Ethiopian Demographic and Health Survey(EDHS) data by Tehran University and Ambo university together(19), confidence level of 95% and 5% degree of precision, design effect 1.5 and 10% non-response rate, using the following formula.

$$n = \frac{Z_{\alpha/2}^2 p(1-p)}{d^2} \quad \text{Where,}$$

n= sample size,

$Z_{\alpha/2}$  = the value under the normal standard table for the given confidence level,

p=estimated of the population proportion,

d= margin of error, by using the above equation the sample size was calculated as follows:

$$n = \frac{(1.96)^2 * 0.487(1-0.487)}{(0.05)^2}, n = 383.9 \sim 384 \text{ by considering design effect and non-response rate the}$$

final sample size was estimated to be 634. But the sample size for the second objective was calculated by Epi-info version 7.2 stat Calc as the table below shown (table 1).

Table 1: Sample size calculation for factors associated with the completion of the maternity continuum of care among women who gave birth in the last 12 months.

S.No.	Factors associated with maternity CoC	assumptions							
		Ratio	power	AOR	the outcome of the unexpose	Design effect	Non-response rate	Sample size	Final sample size
1	Informed pregnancy complication	1	80%	2.03	40.9%	1.5	10%	276	456
2	Birth at health facility	1	80%	3.62	23.3%	1.5	10%	100	165
3	Blood pressure measured	1	80%	5.01	20%	1.5	10%	60	99

Note: Since the sample size of the first objective was greater than the second objective an estimated 634 was considered as the sample size for this study and crude odds ratio (COR) was taken from the same reference as proportion of maternity CoC (19).

#### 4.7 Sampling technique

A cluster sampling technique was used for the selection of study participants after the selection of kebeles by a simple random sampling technique (lottery method). From the nine total kebeles of the town, five kebeles were selected by the lottery method, and then the selected kebeles were included as a cluster for the selection of study participants. All mothers who fulfill the inclusion criteria were included.

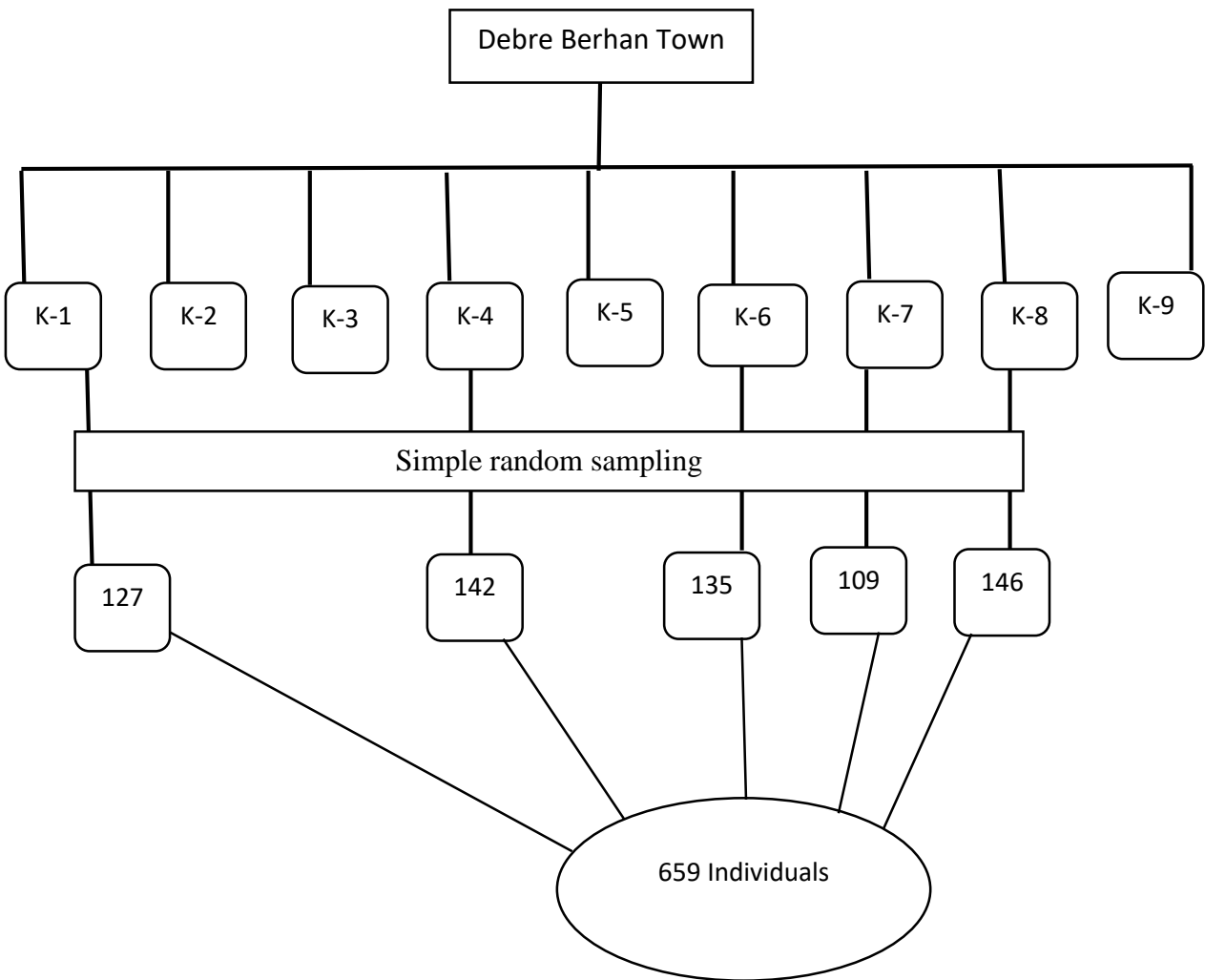


Figure 2: Schematic presentation of the sampling procedure (note: k-kebele).

#### 4.8 Data collection methods and procedures

Data were collected through face to face interviews with pre-tested structured questionnaires by trained data collectors. Data collectors were two BSc midwives and three BSc nurses and supervisors were one MSc midwife and one MPH/Epidemiologist. The training was given for both data collectors and supervisors for one-day duration. The data collection tool was adapted from the Ethiopian Demographic and Health Survey (EDHS) and other literatures. The tool incorporates socio-demographic characteristics, reproductive and obstetrics related variables and maternal health service-related variables.

#### 4.9 Variables

Dependent variable: completion of maternity continuum of care.

Independent variables: socio-demographic (age, marital status, educational status, occupation, monthly income), reproductive and obstetrics related (number of pregnancy, planned/unplanned pregnancy, number of children, number of ANC visit, months of first ANC visit) and maternal health care service-related (counseling on pregnancy complication, birth preparedness, urine and blood sample were taken at ANC, TT vaccination, place of delivery, postnatal visit).

#### 4.10 Operational definitions

- Completion of the maternity continuum of care: Women were considered having completed the continuum when; They had four or more ANC visits by skilled health personnel (medical doctors, midwives, nurses, health officers or community health extension workers) and childbirth by SBA at health institution and PNC at least once after discharge from the health facilities within six weeks by skilled health personnel at the health facility or with in the first week by community health extension workers during their home visit. Women were classified as not completed the continuum of care if they missed any one of the above visits/attendances at any level(17).
- Knowledge of key pregnancy danger signs: women were classified as knowledgeable if they mentioned at least two of the four key danger signs of pregnancy (vaginal bleeding, severe headache, blurring of vision, and swelling of face); if not they were classified as not knowledgeable(17).

- Well prepared for birth and its complications were considered when women reported that they have implemented five or more components of birth preparedness and complication readiness (BPCR) otherwise considered as ‘not well prepared’. The components of BPCR considered in this study were identified place for birth, identified sign of labor, identify supplies needed during labor/delivery, saving money for an emergency, identified emergency transportation, people to support during/after birth, and identified potential blood donors as needed(27,29).
- Planned pregnancy: Planning for the last pregnancy was measured by asking women whether the last pregnancy occurred when she had desired to have children or not. Thus, unplanned pregnancy was considered when women had no desire or no more desire to have children or pregnancy occurred earlier than the desired time.

#### 4.11 Data quality assurance

The training was given for the data collectors on the objective of the study, on study design, and the content of the questionnaires. The questionnaire (tool) was initially prepared in English and translate to the local language (Amharic) and finally translate to English to check its consistency with the original meaning. A structured questionnaire in the local language was used for data collection. Before commencing data collection, a pre-test was conducted on 5% of the sample size (32) out of the study area that had similar characteristics with the study population (Chacha). In response to the pre-test findings, the necessary amendments were made on unclear questions. Daily meeting and supervision were performed. To minimize social desirability bias, women were interviewed in a separate private place in their household compound.

#### 4.12 Data processing and analysis

After checking its completeness and coding, data were entered into Epi-data software version 3.1 and then exported to SPSS version 21 statistical package for analysis. Descriptive statistics were done to quantify the proportion of women who complete the continuum of care for maternal health services. Findings were summarized in tables and graphs using frequencies and percentages. Initially, bivariable logistic regression analysis was performed between the dependent variable and each of the independent variables in sequence. Variables having a p-value of <0.25 in bivariable logistic regression were selected as candidates for multivariable logistic regression analysis. Variable selection was done by enter method. Model fitness was checked by Hosmer and



Lemeshow goodness of test and multicollinearity between the explanatory variables was checked using a variance inflation factor ( $VIF > 10$ ). Association between an outcome variable and explanatory variables was reported by using adjusted odds ratio and its 95% CI, and also variables having p-values less than 0.05 in the multivariable logistic regression model were considered as statistically significant.

#### 4.13 Ethical consideration

Informed written consent was obtained from the participants. The right to withdraw the interview was assured. The privacy and confidentiality of the information obtained from the respondents were kept confidential and anonymous. Study participants were informed about the purpose and the procedure of the study. Ethical clearance was obtained from the Institutional Review Board (IRB) of health Science College, Debre Berhan University. A formal letter of permission was obtained from the Debre Berhan town health office.

#### 4.14 Dissemination of results

The result of this study will be disseminated to the community, policymakers, and stakeholders through presentation (workshop, symposium), binding document, and even through different web sites after publication.

## 5. Results

### 5.1 Socio-demographic characteristics of study participants

A total of 659 participants were found from the selected clusters for this study. Of these, 647 were interviewed with a response rate of 98.2%. Majority 442(68.3%) of respondents were aged 25–34 years mean age was 28.5years (SD = 4.48 years). Most women were married 605(93.5%), however; 28(4.3%) of women were divorced. While 10.4% had no education, 40.0% had college and above education. Regarding to ethnicity, 95.8% study participants were Amhara, and 48.2% were housewives. The median monthly income of the family was 5000 ETB with IQR of 3000ETB-7000ETB. Five hundred seventy-one (88.2%) of respondents were Orthodox Christians. Most (91.3%) of women were ever heard about maternal health services. Over half (52.4%) of participant's partner attained tertiary education (college and above). By occupation 40.2% of their partner were the government employee (**Table 2**).

Table 2: Socio-demographic characteristics of study participants in Debre Berhan Town, North Shewa, Amhara, Ethiopia 2020(n=647).

	<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Age of women in years</b>	15-24	124	19.2
	25-34	442	68.3
	35-49	81	12.5
<b>Religion</b>	Orthodox	571	88.2
	Muslim	36	5.6
	Protestant	35	5.4
	Others	5	0.8
<b>Ethnicity</b>	Amhara	620	95.8
	Oromo	11	1.7
	Tigre	5	0.8
	Guragie	9	1.4
	Others	2	0.3
<b>Marital status</b>	Married	605	93.5
	Divorced/separated	28	4.3
	Widowed	5	0.8
	Single	9	1.4
<b>Educational status</b>	No education	67	10.4
	Primary education(1-8)	183	28.3
	Secondary education(9-12)	138	21.3
	College and above	259	40.0
<b>Occupation</b>	Farmer	15	2.3
	Housewife	312	48.2
	Private employed	73	11.3
	Gov't employed	170	26.3
	Merchant	48	7.4
	Others	29	4.5
<b>Family monthly income(ETB)</b>	≤500	8	1.2
	501-1500	52	8.1
	1501-2500	94	14.5
	≥2501	493	76.2
<b>Educational status of partner</b>	No education	51	7.9
	Primary education(1-8)	101	15.6
	Secondary education(9-12)	156	24.1
	College and above	339	52.4
<b>Occupation of partner</b>	Farmer	36	5.6
	Private employed	145	22.4
	Gov't employed	260	40.2
	Merchant	144	22.3
	Daily laborer	39	6.0
	Others	23	3.5
<b>Ever Heard maternal health services</b>	Yes	591	91.3
	No	56	8.7
<b>Source of maternal health information(n=591)</b>	Mass-media(tv/radio)	207	35.0
	Health care provider	362	61.3
	Others	22	3.7

## 5.2 Reproductive and Obstetrics characteristics of study participants

Among study participants, 247 (38.2%) were primi-gravida, whereas, 64(9.9%) had four and more pregnancies. Six hundred twenty-six (96.8%) of the participant's recent pregnancy was planned. Five hundred twenty-nine (81.8%) of women had initiated their first antenatal visit at or less than 16 weeks of gestation and 482 (74.5%) had four or more antenatal visits throughout their pregnancy (**Table 3**).

Table 3: Reproductive and Obstetrics characteristics of study participants in Debre Berhan Town, North Shewa, Amhara, Ethiopia, 2020(n=647).

Characteristics		Frequency	Percentage
<b>Number of pregnancy</b>	1	247	38.2
	2-3	336	51.9
	≥4	64	9.9
<b>Pregnancy planned</b>	Yes	626	96.8
	No	21	3.2
<b>Number of children</b>	1	253	39.1
	2-3	339	52.4
	≥4	55	8.5
<b>Number of ANC visit for the last pregnancy</b>	<4	165	25.5
	≥4	482	74.5
<b>Timing of first ANC visit for the last pregnancy</b>	≤16 weeks	529	81.8
	>16 weeks	118	18.2

## 5.3 Maternal health service-related characteristics of study participants

Out of all respondents, 412(63.7%) of women had received their antenatal care at public health centers. Five hundred twenty-two (80.7%) had their husband's support during maternal health visit. Regarding the services provided during the pregnancy period; 635(98.1%) had blood pressure measurement, 609(94.1%) received nutritional counseling, 462(71.4%) had taken vaccination for tetanus, 598 (92.4%) informed about danger signs, 560(86.6%) counseled about birth preparedness & complication readiness plan and 591(91.3%) had received iron & folate.

Almost all respondents, 641 (99.1%) had skill birth attendant/health facility delivery, of which 210(32.8%) had stayed in the health facility for 24hrs or more after delivery and 324 (50.5%) had informed on when to return for PNC.

Among respondents who had institutional delivery, 323 (50.4%) had PNC visit at least once after discharge from health facilities (**Table 4**).

Table 4: Maternal health service-related characteristics of study participants in Debre Berhan Town, North Shewa, Amhara, Ethiopia, 2020(n=647).

<b>Characteristics</b>		<b>Frequency</b>	<b>Percentage</b>
<b>Place of ANC visit</b>	Gov't hospital	149	23.0
	Gov't health center	412	63.7
	Private hospital	46	7.1
	Private clinic	40	6.2
<b>Partner support</b>	Yes	522	80.7
	No	125	19.3
<b>Informed pregnancy danger sign</b>	Yes	598	92.4
	No	49	7.6
<b>Knowledge on danger sign(n=598)</b>	Knowledgeable	502	83.9
	Not knowledgeable	96	16.1
<b>Blood pressure measured at ANC</b>	Yes	635	98.1
	No	12	1.9
<b>Urine sample taken</b>	Yes	623	96.3
	No	24	3.7
<b>Blood sample taken</b>	Yes	638	98.6
	No	9	1.4
<b>Nutritional counseling</b>	Yes	609	94.1
	No	38	5.9
<b>TT vaccine at ANC</b>	Yes	462	71.4
	No	185	28.6
<b>Number of TT vaccine(n=462)</b>	One	129	27.9
	Two or more	333	72.1

Table 4 Cont'd...

Characteristics		Frequency	Percentage
<b>Iron tablet taken</b>	Yes	591	91.3
	No	56	8.7
<b>Deworming during ANC</b>	Yes	250	38.6
	No	397	61.4
<b>Informed about Birth preparedness plan</b>	Yes	560	86.6
	No	87	13.4
<b>Status of Birth preparedness(n=560)</b>	Well prepared	297	53.0
	Not well prepared	263	47.0
<b>Place of birth</b>	Home	6	0.9
	Health facility	641	99.1
<b>Type of facility(n=641)</b>	Gov't hospital	340	53.0
	Gov't health center	275	42.9
	Private hospital	24	3.7
	Private clinic	2	0.3
	Others		
<b>Duration of stay after birth(n=641)</b>	<24 hours	431	67.2
	≥24 hours	210	32.8
<b>Informed danger sign at PNC(n=641)</b>	Yes	547	85.3
	No	94	14.7
<b>Knowledge on PNC(n=547)</b>	Knowledgeable	500	91.4
	Not knowledgeable	47	8.6
<b>Informed when to return for PNC(n=641)</b>	Yes	324	50.5
	No	317	49.5
<b>Post natal visit after discharge(n=641)</b>	Yes	323	50.4
	No	318	49.6
<b>Timing of first PNC after delivery(n=327)</b>	First day(24hrs)	20	6.1
	Day 3(48-72hrs)	71	21.7
	Between days 7-14	142	43.4
	Six weeks	94	28.7
<b>Number of PNC(n=327)</b>	One	169	51.7
	Two	121	37.0
	Three or more	37	11.3
<b>Place of PNC received(n=327)</b>	Gov't hospital	86	26.3
	Gov't health center	223	68.2
	Private hospital	10	3.1
	Private clinic	6	1.8
	Others	2	0.6

#### 5.4 Proportion of women completing the maternity continuum of care

According to Fig 4 below, from 482(74.5%) mothers who had at least four ANC visits, 480(74.2%) delivered through SBA. Similarly, from those who had ANC4+ and SBA, 241(37.2%) got at least one PNC after discharge within six weeks. This indicates that major dropouts observed from institutional delivery to postnatal visit. Thus, the overall proportion of women completing the maternity continuum of care was 37.2% with 95% CI (33.4-41.1).

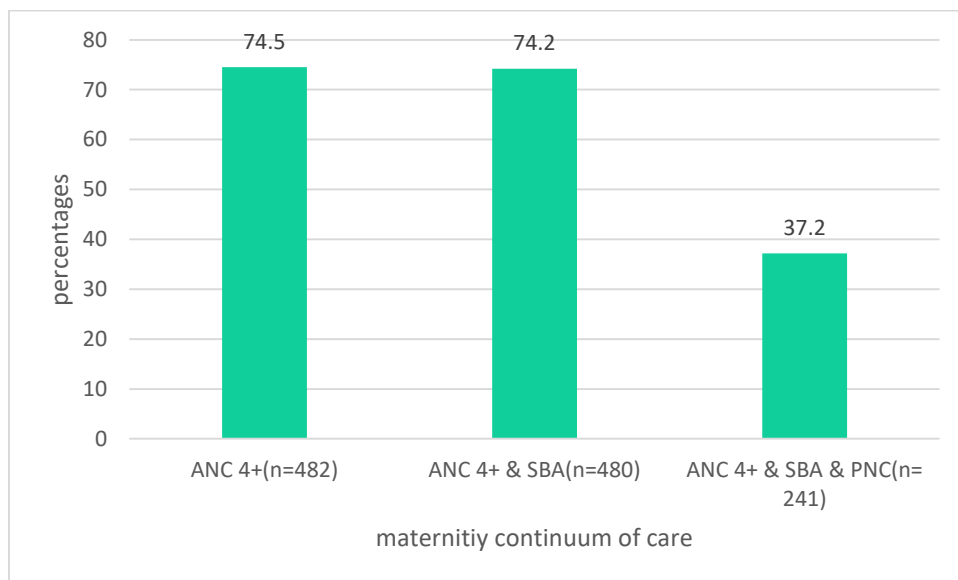


Figure 3: Proportion of women completing the maternity continuum of care along the continuum care path way in Debre Berhan Town, Ethiopia 2020.

## 5.5 Factors associated with the completion of maternity continuum of care

This study has identified some important factors that are associated with the completion of the maternity continuum of care in Debre Berhan town. These were maternal educational status, initiation of ANC visit  $\leq 16$  wks of gestation, knowing pregnancy danger signs, and well prepared on birth and complication readiness plan.

The odds of completing maternity continuum of care was more likely among those women educated; primary education (AOR: 2.732, 95% CI: 1.169-6.383), secondary education (AOR: 3.106, 95% CI: 1.320-7.308), college and above (AOR: 4.149, 95% CI: 1.798-9.572) than those who had no education. The odds of completing maternity continuum of care was 2.6 times higher for those who had first ANC visit at  $\leq 16$  weeks of gestation than their counterparts (AOR: 2.566, 95% CI: 1.407-4.682). Similarly, the odds of completing maternity continuum of care was 91.4% higher among women knowledgeable on the danger signs of pregnancy than those who were not knowledgeable (AOR: 1.914, 95% CI: 1.147-3.195). Women who were well prepared on birth preparedness and complication readiness plan had higher odds to accomplish maternity continuum of care than those who had not (AOR: 1.598, 95% CI: 1.101-2.320) (**Table 5**).



Table 5: Bivariable and multivariable logistic regression analysis of factors associated with the completion of maternity continuum of care in Debre Berhan Town, North Shewa, Amhara, Ethiopia, 2020(n=647).

Variables	Completion of maternity continuum of care		COR(95% CI)	AOR(95% CI)
	Yes	No		
<b>Age of the mother</b>				
15-24	50	74	1.931(1.046-3.563)	1.890(0.966-3.697)
25-34	170	272	1.786(1.048-3.042)	1.1.554(0.872-2.768)
35-49	21	60	1	
<b>Educational status of the mother</b>				
No education	8	59	1	
Primary education	60	123	3.598(1.616-8.009)	<b>2.732(1.169-6.383)*</b>
Secondary education	48	90	3.933(1.737-8.907)	<b>3.106(1.320-7.308)**</b>
College and above	125	134	6.880(3.161-14.972)	<b>4.149(1.798-9.572)**</b>
<b>Ever heard about maternal health services</b>				
Yes	229	362	2.320(1.20-4.485)	1.401(0.670-2.927)
No	12	44	1	
<b>Was the pregnancy planned</b>				
Yes	237	389	2.589(0.861-7.781)	1.575(0.472-5.250)
No	4	17	1	
<b>Timing of first ANC visit</b>				
≤16 weeks	223	306	4.049(2.381-6.883)	<b>2.566(1.407-4.682)**</b>
>16 weeks	18	100	1	
<b>Husband support</b>				
Yes	211	311	2.148(1.375-3.356)	.898(0.522-1.544)
No	30	95	1	
<b>Knowledge of danger sign of pregnancy</b>				
Knowledgeable	214	288	3.247(2.062-5.113)	<b>1.914(1.147-3.195)*</b>
Not knowledgeable	27	118	1	
<b>Blood sample taken</b>				
Yes	240	398	4.824(0.600-38.809)	1.605(0.148-17.442)
No	1	8	1	
<b>Iron and folate taken</b>				
Yes	229	362	2.320(1.20-4.485)	1.377(0.671-2.826)
No	12	44	1	
<b>Informed about BPCR</b>				
Yes	218	342	1.774(1.070-2.942)	1.145(0.638-2.055)
No	23	64	1	
<b>Status of BPCR</b>				
Well-prepared	140	157	2.198(1.589-3.041)	<b>1.598(1.101-2.320)*</b>
Not well-prepared	101	249	1	

Note:\*p<0.05, \*\*p<0.01, COR-crude odds ratio, AOR-adjusted odds ratio, 1-reference, BPCR-birth preparedness & complication readiness plan

## 6. Discussion

Continuum of care has become a key strategy of intervention programs for improving the health and wellbeing of mothers. This strategy calls for a service delivery system connecting the three components of maternal care; antenatal, delivery, and postnatal services. The current study reveals that only about one-third (37.2%) of women in the study area received all elements of the continuum of care.

This finding is higher than study conducted in Pakistan(27%), Ghana(8%), Tanzania(10%) and multilevel analysis of EDHS 2016(9.1%)(14,16,17,19) but lower than findings from study in Nepal(45.7%), Cambodia(60%), and Egypt(50.4%)(8,15,18). This variation possibly due to time variation, and variation in the source of data. This is possibly explained as, due to studies conducted in Pakistan, Ghana, Tanzania and Ethiopia were used data from Pakistan DHS, Ghana DHS, Tanzania DHS and Ethiopian DHS respectively, which means, it includes rural part of the country where the community relatively had limited access for maternity care services than urban but this study was conducted in the town. On the other hand the possible difference observed from studies conducted in Nepal, Cambodia and Egypt were considered postnatal care complete if the women received postnatal care services within 48 hours after delivery, this may higher the finding because most women delivered in health facility and stay at least 6 hours until discharge so most of them counted as they had postnatal care. But in this study a woman had postnatal care if she return to or visit the health institution to seek postnatal care after she discharged from the health facility.

Women's educational status was positively associated with the completion of the maternity continuum of care. As the educational status of mothers increased, the probability of completion of their maternity continuum of care also increased. Women with primary education, secondary education, and college or above education had 2.7, 3.1 and 4.2 times higher odds to complete the maternity continuum of care respectively compared to non-educated women. This is consistent with studies in Nepal and Pakistan(8,14). The above finding is also maintained by other studies in which, maternal educational status of secondary school and above were positively associated with maternal health service utilization(21–23). The possible reason might be that educated women have the autonomy to decide on seeking maternal health services and better awareness about the advantage of completing the maternity continuum of care.

Timing for antenatal care initiation was one of the factors that increases the completion maternity of continuum of care in this study. The odds of completing maternity continuum of care was 2.6 times higher for those who had first ANC visit at  $\leq 16$  weeks of gestation than their counterparts. This is plausible from the point that women who present early for antenatal care have higher probability to complete the recommended antenatal care visits and thus complete the first continuum is prerequisite for completion of maternity CoC. WHO also recommends early antenatal initiation in order to women's attain adequate antenatal care visits and improve their health(30). The reason for this finding might be early initiation is an opportunity for health promotion and a prevailing predictor of the content of antenatal care services. A likely justification would also include that pregnant women attending ANC clinics early might have the chance to familiarize to the health facility environment and this in turn would have helped them to avoid needless fear and stress related to institutional service use. Furthermore, early booking might help women to set birth plans discussing with the ANC provider and hence increase women's occurrence of antenatal care visit, delivery, and postnatal service use.

The odds of completing the maternity continuum of care was almost 2 times higher among those women who were knowledgeable about the danger signs of pregnancy than their counterparts. This finding is straight with the prior study conducted in Ethiopia on the care continuum of maternal and child health from EDHS 2016, in which women received maternal health service during antenatal care such as informed about pregnancy danger signs and complications had higher odds to achieve maternity continuum of care(19). As a fact that women informed better about pregnancy and recognize the importance each service provided(15). The above idea is supported by other study done on knowledge of danger sign in which women with knowledge of pregnancy complications were more likely to seek maternal health service utilization as compared with their counterparts(31). The reason might be knowledgeable women have understandings about the consequences of pregnancy danger signs and its complications. This increases their curiosity and accountability not only for their health but also the health of their child.

This study also revealed that birth preparedness and complication readiness status of women ahead of childbirth is an important predictor of maternity care continuum completion. Those women who were well prepared on birth preparedness and complication readiness plan had 60% higher odds to complete the maternity continuum of care than those who were not well prepared. This finding

supported by other studies conducted in Goba district and Nepal, which states that birth preparedness is one of the critical factors in determining the likelihood of having institutional delivery and checkups after delivery(27,29). This might be due to well-prepared women have recognized the value of birth preparedness and complication readiness plan, and better social support to get maternal health services.

### **Limitation of the study**

The study was not free of limitations. First, the study participants were women who gave birth in the last 12 months. Provided that they were asked to recall their pregnancy experience, recall bias was possible, though such bias was minimized by focusing on women with a recent birth. Second, the study was based on self-reports and this might have introduced social desirability bias, despite the participants were interviewed privately in the living compound. Thus, the results of this study should be construed with consideration of these limitations.

## 7. Conclusions

The proportion of women completing the maternity continuum of care was low in Debre Berhan town. The main identified factors positively associated with the completion of the maternity continuum of care were maternal educational status, initiation of ANC visit  $\leq 16$  wks of gestation, knowing pregnancy danger signs, and well prepared on birth and complication readiness plan.

## 8. Recommendations

- Recommendation for health facilities and health care providers
  - ✓ Emphasis should be given for early initiation of antenatal care
  - ✓ Facilitating women's ability to have four or more ANC visits because it is an important means to strengthen the continuum of the care pathway.
  - ✓ Strengthen the counseling services during ANC visit by emphasizing on danger signs and complications of pregnancy and on birth preparedness and complication readiness plan
  - ✓ Better to reduce the number of women who did not receive postnatal care to improve the completion of the maternity continuum of care through comprehensive counseling about PNC services and by integrating the MNCH clinics.
  - ✓ Encouraging women to have the recommended maternal health care during pregnancy to promote the completion of the maternity continuum of care.
- Therefore, due attention should be given to those factors that positively associated with the completion of maternity continuum of care such as maternal education, advising on pregnancy danger signs, initiation of ANC  $\leq 16$  wks of gestation and birth preparedness and complication readiness plan.

## References

1. USAID. Ending Preventable Maternal Mortality: USAID Maternal Health Vision for Action Evidence for Strategic Approaches. 2015;
2. World Health Organization. WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division:trends in maternal mortality 2000 to 2017 [Internet]. 2019. Available from: [www.who.int/reproductivehealth](http://www.who.int/reproductivehealth)
3. Central Statistical Agency (CSA) [Ethiopia] and ICF. Ethiopia Demographic and Health Survey 2016. Addis Ababa, Ethiopia, and Rockville, Maryland, USA: CSA and ICF. 2016.
4. Owili PO, Muga MA, Mendez BR, Chen B. Quality of maternity care and its determinants along the continuum in Kenya: A structural equation modeling analysis. *PLoS One*. 2017;12(5):e0177756.
5. UNICEF: UNICEF Global database 2019,Monitoring the situation of children and women [Internet]. 2019. Available from: <https://data.unicef.org/topic/maternal-health/delivery-care/>accessed date 1/14/2020
6. The Partnership for Maternal N, and Child Health. PMNCH knowledge summary #02 enable the continuum of care. Geneva, Switzerland. Partnersh Matern Newborn, Child Heal. 2010;2–4.
7. Kinney AM V, Kerber KJ, Black RE, Cohen B, Nkrumah F, Friberg AIK, et al. Sub-Saharan Africa’s mothers, newborns, and children: Where and why do they die? *PLoS Med*. 2010;7(6).
8. Tamang TM. Factors Associated with Completion of Continuum of Care for Maternal Health in Nepal. In: *IUSSP XXVIII International Population Conference*, Cape Town, South Africa,. 2017. p. 1–23.
9. MoH. Health Sector Transformation Plan(HSTP),The Federal Democratic Republic of Ethiopia Ministry of Health. 2015.
10. WHO. Global reference list of 100 Core Health Indicators (plus health related SDGs). Geneva: World Health Organization; 2018;

11. Mulu Abraha Woldegiorgis, Jahar L. Bhowmik<sup>1</sup>, Janet E. Hiller WM. Trends in Reproductive Health indicators in Ethiopia :2000-2014. *Int J Heal care*. 2017;3(1):17–25.
12. Ethiopian Public Health Institute (EPHI) [Ethiopia] and ICF.Ethiopia Mini Demographic and Health Survey 2019: Key Indicators. Rockville, Maryland, USA: EPHI and ICF. 2019.
13. Kavita Singh WTS and ACM. assessing the continuum of care pathway for maternal health in south asia and sub-saharan africa. *Matern child Heal*. 2017;20(2):281–9.
14. Iqbal S, Maqsood S, Zakar R, Zakar MZ, Fischer F. Continuum of care in maternal , newborn and child health in Pakistan : analysis of trends and determinants from 2006 to 2012. *BMC Heal Serv Res*. 2017;17(189).
15. Wang W, Hong R. Levels and determinants of continuum of care for maternal and newborn health in Cambodia- evidence from a population-based survey. *BMC Pregnancy Childbirth*. 2015;15(62).
16. Yeji F, Shibanuma A, Oduro A, Debpuur C. Continuum of Care in a Maternal , Newborn and Child Health Program in Ghana : Low Completion Rate and Multiple Obstacle Factors. *PLoS One*. 2015;10(12):1–23.
17. Mohan D, Lefevre AE, George A, Mpembeni R, Bazant E, Rusibamayila N, et al. Analysis of dropout across the continuum of maternal health care in Tanzania : findings from a cross-sectional household survey. *Heal PolicyandPlanning*, 2017,. 2017;32,(6):791–9.
18. Hamed AF, Roshdy E, Sabry M. Egyptian status of continuum of care for maternal , newborn , and child health : Sohag Governorate as an example. *Int J Med Sci Public Heal*. 2018;7(6):417–26.
19. Chaka EE, Parsaeian M MR. Factors Associated with the Completion of the Continuum of Care for Maternal , Newborn , and Child Health Services in Ethiopia . Multilevel Model Analysis. *Int J Prev Med*. 2019;10(136).
20. Sisay MM, Geremew TT, Demlie YW, Alem AT, Beyene DK, Melak MF, et al. Spatial patterns and determinants of postnatal care use in Ethiopia : findings from the 2016 demographic and health survey. *BMJ Open*. 2019;1–9.

21. Fekadu, Gedefaw A., Fentie A. Getahun and SAK. Facility Delivery and Postnatal Care Services Use among Mothers Who Attended Four or More Antenatal Care Visits in Ethiopia: Further Analysis of the 2016 Demographic and Health Survey. DHS Working Paper No. 137. Rockville, Maryland, USA: ICF. 2018.
22. Asefa A, Gebremedhin S, Messele T, Letamo Y, Shibru E, Alano A, et al. Mismatch between antenatal care attendance and institutional delivery in south Ethiopia : A multilevel analysis. *BMJ Open*. 2019;9(e024783):1–10.
23. Shibanuma A, Yeji F, Okawa S, Mahama E, Kikuchi K, Narh C, et al. The coverage of continuum of care in maternal , newborn and child health : a cross-sectional study of woman-child pairs in Ghana. *BMJ Glob Heal*. 2018;3(:e000786):1–13.
24. Wudineh KG, Nigusie AA, Gesese SS, Tesu AA. Postnatal care service utilization and associated factors among women who gave birth in Debretabour town , North West Ethiopia : a community- based cross-sectional study. *BMC Pregnancy Childbirth*. 2018;18(508):1–9.
25. Chukwuma A, Wosu AC, Mbachu C, Weze K. Quality of antenatal care predicts retention in skilled birth attendance : a multilevel analysis of 28 African countries. *BMC Pregnancy Childbirth*. 2017;17(152):1–10.
26. Hanna G, Gulema H, Berhane Y. Timing of First Antenatal Care Visit and its Associated Factors among Pregnant Women Attending Public Health Facilities in Addis Ababa, Ethiopia. 2017;27(1).
27. Belda SS, Gebremariam MB. Birth preparedness , complication readiness and other determinants of place of delivery among mothers in Goba District , Bale Zone ,. *BMC Pregnancy Childbirth* [Internet]. 2016;16(73):1–12. Available from: <http://dx.doi.org/10.1186/s12884-016-0837-8>
28. Fekadu GA, Kassa GM, Berhe AK, Muche AA, Katiso NA. The effect of antenatal care on use of institutional delivery service and postnatal care in Ethiopia : a systematic review and meta-analysis. *BMC Heal Serv Res*. 2018;18(577):1–11.
29. Nawal D, Goli S. Birth Preparedness and Its Effect on Place of Delivery and Post-Natal



- Check- Birth Preparedness and Its Effect on Place of Delivery and Post-Natal Check-Ups in Nepal. PLoS One. 2013;8(5):1–9.
30. USAID. WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience : Summary Highlights and Key Messages from the World Health Organization ’ s 2016 Global Recommendations for Routine Antenatal Care. 2018.
  31. Kifle D, Azale T, Gelaw YA, Melsew YA. Maternal health care service seeking behaviors and associated factors among women in rural Haramaya District , Eastern Ethiopia : a triangulated community-based cross-sectional study. *Reprod Health* [Internet]. 2017;14(6):1–11. Available from: <http://dx.doi.org/10.1186/s12978-016-0270-5>

## Annexes

### Annex I: English Version Information Sheet and Consent Form

Information sheet and consent form for study participants

Debre Berhan University, college of health science, department of public health

Section I: information sheet

Name of study area (kebeles) \_\_\_\_\_

ID no \_\_\_\_\_

Introduction: good morning/afternoon? My name is \_\_\_\_\_. In this study which is undertaken by Debre Berhan University, college of health science, department of public health, you and I would have a short discussion of about 10-15 minutes of duration. Before we are going to our discussion, I kindly request you to listen carefully to I am going to read to you about the purpose and general condition of the study and you will tell me whether you agree or disagree to participate in this study at the end.

The purpose of this study is to assess the completion of the maternity continuum of care and associated factors among mothers who gave birth in the last 12 months in Debre Berhan town. The study will be conducted through face to face interviews. The information you provide is very crucial for the achievement of the purpose of the study. I would like to confirm that you have the right to withdraw the interview at any time or skip any question that you do not wish to answer. Your privacy and confidentiality are maintained and nobody will know your answer. A code number will identify every participant and no name will be used. If you do not wish to participate, or refuse to respond or stop responding to the questions will not affect now or in the future on the services that you or any members of a family may receive from the service providers.

Are you willing to participate in this study?            1. Yes, 2. No

NB: if the answer is **Yes**, please continue, while if the answer is **No**, thanks to her and end.

Section II: consent form for participants

I, the undersigned, have been informed about the purpose of this particular research project. I have been informed that I am going to respond to these questions by answering what I know concerning the issue. I have been informed that the information I give will be treated confidentially. I have also been informed that I can refuse to participate in the study or I can stop responding to the questions at any time in the process. Based on the above information I agree to participate in this study voluntarily.

Signature \_\_\_\_\_ Date \_\_\_\_\_

NB: . If the study subject is voluntary to participate in the study, begin the interview.

If there are things that require clarification please don't hesitate to ask the interviewer or the principal investigator.

Address of the principal investigator

Michael Amera

Debre Berhan University, college of health science, department of public health

Mobile: 0911369096/0913787800

Email: [michaelamera12@gmail.com](mailto:michaelamera12@gmail.com)

Annex II: English Version Questionnaires

<b>Part I: socio-demographic characteristics of the respondents</b>			
	Characteristics	Category	Skip
1.	Age of the mother ( in completed years)	-----	
2.	Religion	1= orthodox 2= Muslim 3= protestant 4= catholic 5= others specify -----	
3.	Ethnic group	1= Amara 2= Oromo 3= Tigre 4= Guragie 5= others specify -----	

4.	Marital status	1= married/living together 2= divorced/separated 3= widowed 4=single/never married	
5.	Educational status	1= no education 2= primary education(1-8) 3= secondary education(9-12) 4= tertiary(college and above)	
6.	Occupation	1= farmer 2= student 3= house wife 4= private employed 5= government employed 6= merchant 7= others specify -----	
7.	Average monthly income of the family(cash)	-----	
8.	Educational status of husband/partner	1= no education 2= primary education (1-8) 3= secondary education (9-12) 4= tertiary (college and above)	
9.	Occupation of husband/partner	1= farmer 2= student 3= private employed 4= government employed 5= merchant 6= others specify -----	
10	Have you ever heard about maternal health?	1. Yes      2. No	If no go to part-II
11	Source of maternal health information	1= Mass-media (tv/radio/) 2= healthcare provider 3= Health development army 4= Others specify_____	

**Part II: obstetrics and reproductive related variables**

	Characteristics	Category	Skip
1.	Number of pregnancy	_____	
2.	Was the last pregnancy planned?	1= Yes    2= No	
3.	Number of children	_____	
4.	How many times did you receive antenatal care during this pregnancy?	_____	
5.	How many months pregnant were you when you received your first antenatal care for this pregnancy?	_____ months	

**Part III: maternal health service-related variables**

1.	Where did you receive antenatal care for this pregnancy?	More than one choice is possible	
----	--	----------------------------------	--

		1= gov't hospital 2= gov't health center/station 3= private hospital 4= private clinic 5= others	
2.	Is your husband/partner alongwith you during your ANC visit?	1= Yes 2= No	
3.	During (any of) your antenatal care visit(s) were you told about the sign of pregnancy complications or danger sign of pregnancy?	1= Yes 2= No	If <b>No</b> go to <b>5</b>
4.	Which signs of pregnancy complications were you told about? ( More than one choice is possible)	More than one choice is possible 1= vaginal bleeding 2= severe headache 3= blurred vision 4= swelling of face 5= others specify_____	
5.	a) Was your blood pressure measured at ANC?	1= Yes 2= No	
	b) Did you give a urine sample?	1= Yes 2= No	
	c) Did you give a blood sample?	1= Yes 2= No	
	d) Did any health worker give you nutritional counseling?	1=Yes 2= No	
6.	During this pregnancy, were you given an injection in the arm or shoulder to prevent the baby from getting tetanus, that is, convulsions after birth?	1= Yes 2= No	if <b>No</b> go to <b>8</b>
7.	During this pregnancy, how many times did you get a tetanus injection?	_____times	
8.	During this pregnancy, were you given or did you buy any iron tablets?	1= Yes 2= No	
9.	During this pregnancy, were you given or did you buy any drugs for intestinal worms?	1= Yes 2= No	
10	During any of your antenatal visits were you told about birth preparedness plan?	1= Yes 2= No	If <b>No</b> go to <b>12</b>
11	Which plans were you told about? ( More than one choice is possible)	1= place of birth 2= identified sign of labor 3= supplies needed during labor/delivery 3= emergency transportation	

		4= money/emergency fund 5=people to support during/after birth 6= potential blood donors 7= others specify_____	
12	Where did you give your recent birth?	1= home 2= health facility	If home go to 19
13	Which health facility did you give birth to?	1= gov't hospital 2= gov't health center/station 3= private hospital 4= private clinic 5= others	
14	How long did you stay there after delivery?	Hours/_____ days _____ /weeks _____	
15	Before discharge from the health facility were you told of danger signs of maternal health after delivery?	1= Yes 2= No	If No go to 17
16	Which danger signs of maternal health were you told about? (More than one choice is possible)	1= heavy vaginal bleeding 2= fever 3= smelly vaginal bleeding 4= depression 5= others specify_____	
17	Were you informed when to return to the health facility?	1= Yes 2= No	
18	Did you have a postnatal care visit (after discharge)?	1= Yes 2= No	If No stop here
19	When did you get the first PNC after discharge or after home delivery?	Please write(less than day =hours, less than weeks =days) In Hours _____ In days _____ In weeks _____	
20	How many times did you get PNC?	-----	
21	Where did you get the PNC service? ( More than one choice is possible)	1. Public hospital 2. Health center 3. Private hospital 4. Private clinic 5. Others	

Thank you for your participation!!!

Annex III: Amharic Version Information Sheet and Informed Consent Form

**ባለፈው አንድ አመት ውስጥ ለወለዱ እናቶች የመረጃ መስጫ እና የፈቃደኝነት መጠየቂያ ቅጽ**

**ደብረበርሃን ዩኒቨርሲቲ፣ ጤና ሳይንስ ኮሌጅ፣ ህብረተሰብ ጤና ትምህርት ክፍል**

ክፍል አንድ፣ የመረጃ መስጫ ቅጽ

1. ጥናቱ የሚካሄደበት ቀበሌ ስም-----
2. የመጠይቁ መለያ ቁጥር-----

መግቢያ: እንደምን አደሩ/ዋሉ ስሜ ----- ይባላል፡የመጣሁት ደብረበርሃን ዩኒቨርሲቲ፣ ጤና ሳይንስ ኮሌጅ፣ህብረተሰብ ጤና ትምህርት ክፍል አስተባባሪነት ለሚከናወን ጥናት ከርሰዎ ጋር አጠር ያለና ከ10-15 ደቂቃ የሚወስድ ውይይት ለማድረግ ነዉ።ወደ ውይይቱ ከመግባታችን በፊት ስለ ጥናቱ አላማና ጠቅላላ ሁኔታ ስለማነብላዎት በጥሞና እንዲያዳምጡኝ በትህትና እጠይቅዎታለሁ። በመጨረሻም በጥናቱ ለመሳተፍ መስማማትዎትንና አለመስማማትዎትን ይነግሩኛል።

ይህ ጥናት የሚካሄደው ባለፈው አንድ አመት ውስጥ ከወለዱ እናቶች ውስጥ ምንያክሉ ቀጣይነት ያለው የእናቶች ጤና ክብካቤ እንደወሰዱ እና ተያያዥ ጉዳዮችን ለማጥናት ነዉ ። በጥናቱ እንዲሳተፉ በእጣ ከተመረጡ እናቶች አንዷ እርስዎ ነዎት።ይሁን እንጂ ማንኛውም ጥያቄ አለመመለስ እንዲሁም በማንኛውም ጊዜ ጥያቄውን ማቋረጥና በጥናቱ አለመሳተፍ ይችላሉ።

በቆይታዎ ሁሉ ምስጢር እንደምንጠብቅ እያረጋገጥኩኝ እያንዳንዱ ተሳታፊ የተለየው በመለያ ቁጥር እንጂ ስም ግን አይጠቅስም። ለማንኛውም ጥያቄ የሚሰጡት ምላሽ ለሌላ ሰው ተላልፎም አይሰጥም። መጠይቁ በፈቃደኝነት ላይ ብቻ የተመሰረተ ሲሆን እርሰዎ መሳተፍዎ ወይም ባለመሳተፍዎ እንዲሁም ጥያቄዎችን አቋርጠው በመተውዎ አሁንም ይሁን ወደፊት እርሰዎም ይሁን ቤተሰብዎ በሚያገኙት አገልግሎት ላይ ምንም አይነት ተጽዕኖ አይኖረውም።

በጥናቱ ላይ ለመሳተፍ ፈቃደኛ ነዎት?      1. አዎ 2. አይደለሁም

ማስታወሻ: የጥናቱ ላይ ተሳታፊ ለመሆን ፈቃደኛ ከሆኑ ወደ ፈቃደኝነት ማረጋገጫ ቅጽ ይለፉ ካልሆኑ ግን አመስግነው መጠይቁን ያቁሙ።

**ክፍል 2 : Amharic version informed consent form**

ከታች ፈርማዩን ያኖረኩት እኔ የጥናቱ ዓላማ የተነገረኝ ሲሆን ለምጠየቀው ጥያቄ የማቀውን መመለስ እንደምችል፤ የምሰጠውም መረጃ ለዚህ ጥናት አገልግሎት ብቻ የሚውል ሲሆን ስሜ የማይጠቀስና የምሰጠውም መረጃ በምስጢር እንደሚጠበቅ ተነግሮኛል። በተጨማሪም ካልፈለኩ በጥናቱ ያለመሳተፍ ፤ ጥያቄ ያለመመለስና በጥያቄው መካከል አቋርጬ መተዉ እንደምችል ተነግሮኛል። በተነገረኝ መረጃ መሰረት በጥናቱ ተሳታፊ ለመሆን ፈቃደኛ መሆኔን በፈርማዩ አረጋግጣለሁ።

ፈርማ ----- ቀን -----

**ማስታዎሻ:** የጥናቱ ተሳታፊ ለመሆን በፈርማቸው ካረጋገጡ መጠይቁን ይጀምሩ።

ማንኛውም ዐይነት ገለጻ የሚያስፈልጋቸው ነገሮች ካሉ መረጃ ሰበሰባቢውንም ሆነ ዋና ተመራማሪውን በአካልም ሆነ በአድራሻው ይጠይቁ።

የዋና ተመራማሪው አድራሻ:

ሚካኤል አመራ

ደብረብርሃን ዩኒቨርሲቲ፤ ጤና ሳይንስ ኮሌጅ፤ በህብረተሰብ ጤና ትምህርት ክፍል

ስልክ ቁጥር: 0911369096

ኢሜል: [michaelamera12@gmail.com](mailto:michaelamera12@gmail.com).

Annex IV: Amharic version questionnaires

ክፍል 1: ማህበራዊ እና ነባራዊ ሁኔታ			
ተ/ቁ	ጥያቄ	መልስ/አማራጭ	ማለፍ
1.	የእናት እድሜ(በሙሉ አመት)	-----	
2.	ሀይማኖት	1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሌላ ካለ ይጠቀስ-----	
3.	ብሔር	1. አማራ 2. ኦሮሞ 3. ትግሬ 4. ጉራጌ 5. ሌላ ካለ ይጠቀስ-----	



4.	የጋብቻ ሁኔታ	1. ያገባች/አብረው የሚኖሩ 2. የፈታች/የተለያዩ 3. የሞተባት 4. ያላገባች	
5.	የእናት የትምህርት ሁኔታ	1. ያልተማረች 2. 1-8ኛ ክፍል 3. 9-12ኛ ክፍል 4. ኮሌጅ እና ከዛ በላይ	
6.	የእናት የስራ ሁኔታ	1. ገበሬ 2. ተማሪ 3. የቤት እመቤት 4. የግል ተቀጣሪ 5. የመንግስት ሰራተኛ 6. ነጋዴ 7. ሌላ ካለ ይጠቀስ-----	
7.	የቤተሰብ ወርሀዊ ገቢ በአማካይ	-----	
8.	የባል የትምህርት ሁኔታ	1. ያልተማረ 2. 1-8ኛ ክፍል 3. 9-12ኛ ክፍል 4. ኮሌጅ እና ከዛ በላይ	
9.	የባል የስራ ሁኔታ	1. ገበሬ 2. ተማሪ 3. የግል ተቀጣሪ 4. የመንግስት ሰራተኛ 5. ነጋዴ 6. ሌላ ካለ ይጠቀስ-----	
10.	ስለእናቶች ጤና ሰምተው ያዉቃሉ?	1. አዎ 2. የለም	<b>የለም</b> ከሆነ ወደ ክፍል-2 ይለፉ
11.	የእናቶች ጤና መረጃ ምንጭዎ ምንድን ነው?	1. መገናኛ ብዙሃን 2. የጤና ባለሙያ 3. የጤና ልማት ሰራዊት 4. ሌላ ካለ ይጠቀስ-----	
<b>ክፍል 2: ስነ-ተዋልዶ ነክ መጠይቅ</b>			
1.	የመጨረሻው ሊጅ ስንተኛ እርግዝናዎ ነበር?	-----	
2.	እርግዝናዉ የታቀደ ነበር?	1. አዎ 2. አይደለም	
3.	ስንት ልጅ አለዎት?	-----	

4.	በዚህ እርግዝና ወቅት ስንት ጊዜ የቅድመ ወሊድ ክትትል አግኝተዋል?		
5.	ለእዚህ እርግዝና የመጀመሪያ ቅድመ ወሊድ ክትትል ሲያገኙ የስንት ወር ነፍሰ ጡር ነበሩ?	-----ወር	
<b>ክፍል 3: የእናቶች ጤና አገልግሎት ነክ መጠይቅ</b>			
1.	በዚህ እርግዝና ወቅት ቅድመ ወሊድ ክትትል ያደረጉት የት ነበር?	<ol style="list-style-type: none"> <li>1. የመንግስት ሆስፒታል</li> <li>2. ጤና ጣቢያ/ኬላ</li> <li>3. የግል ሆስፒታል</li> <li>4. የግል ክሊኒክ</li> <li>5. ሌላ ካለ ይጠቀስ-----</li> </ol>	
2.	በቅድመ-ወሊድ ክትትል ወቅት ባለቤትዎ/የትዳር አጋርዎ አብሮዎት ነዉ?	<ol style="list-style-type: none"> <li>1. አዎ</li> <li>2. የለም</li> </ol>	
3.	በክትትል ወቅት በእርግዝና ወቅት ሊከሰቱ ስለሚችሉ አደገኛ ምልክቶች ተነግሮዎት ያዉቃል?	<ol style="list-style-type: none"> <li>1. አዎ</li> <li>2. የለም</li> </ol>	<b>የለም</b> ከሆነ ወደ 5 ይሂዱ
4.	ስለየትኞቹ አዳገኛ ምልክቶች ነዉ የተነገረዎት?(ከአንድ በላይ መምረጥ ይቻላል)	<ol style="list-style-type: none"> <li>1. ከማህትጸን ደም መፍሰስ</li> <li>2. ከፍተኛ ራስ ምታት</li> <li>3. የእይታ መደብዘዝ/ብዥታ</li> <li>4. የፊት እና የእጅ ማበጥ</li> <li>5. ሌላ ካለ ይተቀስ-----</li> </ol>	
5.	በቅድመ ወሊድ ክትትል ወቅት ቢያንስ አንድ ጊዜ ከሚከተሉት ዉስጥ ተደርጎልዎታል?		
	ሀ/ የደም ግፊት ተለክተዋል?	1. አዎ 2. የለም	
	ለ/ የሽንት ምርመራ ተደርጎልዎታል?	1. አዎ 2. የለም	
	ሐ/ የደም ምርመራ ተደርጎልዎታል?	1. አዎ 2. የለም	
	መ/ የአመጋገብ ምክር ተሰጦዎታል?	1. አዎ 2. የለም	
6.	በ እርግዝናሽ ወቅት የመንጋጋ ቆልፍ ክትባት ተከትበዋል?	<ol style="list-style-type: none"> <li>1. አዎ</li> <li>2. የለም</li> </ol>	<b>የለም</b> ከሆነ ወደ 8 ይሂዱ
7.	በእርግዝናዎ ወቅት ስንት ጊዜ ተከተቡ?	-----ጊዜ	

8.	በእርግዝናዎ ወቅት የደም ማነስ ክኒን ወስደዋል/ተሰጥዎታል?	1. አዎ 2. የለም	
9.	በእርግዝናዎ ወቅት ለሆድ ትላትል/ ነፍሳት መድሃኒት ወስደዋል?	1. አዎ 2. የለም	
10.	በእርግዝናዎ ወቅት ስለወሊድ ቅድመ ዝግጅት እቅድ ተነግሮዎት ያዉቃል?	1. አዎ 2. የለም	<b>የለም</b> ከሆነ ወደ <b>12 ይሂዱ</b>
11.	ስለ የትኞቹ የወሊድ ቅድመ ዝግጅት እቅድ ተነግሮዎታል?(ከአንድ በላይ መምረጥ ይቻላል)	1. የመዉለጃ በታ መለየት 2. የምጥ ምልክትን መለየት 3. ስለ ድንገተኛ ጊዜ የመጓጓዣ አገልግሎት 4. ለችግር ጊዜ የሚሆን ገንዘብ ምቆጠብ 5. በወሊድ ጊዜ እና ከወሊድ በኋላ ስለሚንከባከብ ሰው መወሰን 6. ደም የሚለግስ ሰው ማዘጋጀት 7. ሌላ ካለ ይጠቀስ-----	
12.	የመጨረሻዉን ሊጅ የት ነበር የወለዱት?	1. ቤት 2. ጤና ተቋም	<b>ቤት</b> ከሆነ ወደ <b>19</b>
13.	የት ጤና ተቋም ነበር የወለዱት?	1. የመንግስት ሆስፒታል 2. የመንግስት ጤና ጣቢያ 3. የግል ሆስፒታል 4. የግል ክሊኒክ 5. ሌላ ካለ ይጠቀስ-----	
14.	ከወለዱ በኋላ በጤና ተቋሙ ውስጥ ለምን ያክል ጊዜ ቆዩ?	-----ሰአት-----ቀን----- ሳምንት	
15.	ከጤና ተቋም ከመዉጣትዎ በፊት ከወሊድ በኋላ በእናቶች ላይ ሊከሰቱ ስለሚችሉ አዳገኛ ምልክቶች ተነግሮዎታል?	1. አዎ 2. የለም	<b>የለም</b> ከሆነ ወደ <b>17 ይሂዱ</b>
16.	ስለ የትኞቹ አዳገኛ ምልክቶች ነበር የተነገረዎት?(ከአንድ በላይ መምረጥ ይቻላል)	1. ከማህጸን ከፍተኛ ደም መፍሰስ 2. ትኩሳት 3. ሽታ ያለዉ ፈሳሽ ከማህጸን መፍሰስ 4. ድብርት 5. ሌላ ካለ ይጠቀስ-----	

17.	ለድህረ-ወሊድ ክትትል ወደ ጤና ተቋም መቸ መመለስ እንዳለብዎት ተነግሮዎት ነበር?	1. አዎ 2. የለም	
18.	ወደ ቤት ከሄዱ በኋላ ለድህረ-ወሊድ ክትትል ወደ ጤና ተቋም መጥተዉ ታይተዋል?	1. አዎ 2. የለም	<b>የለም</b> ከሆነ እዚህ ያቁሙ
19.	ወደ ቤት ከሄዱ በኋላ (ወይም ቤት ከወለዱ በኋላ) የመጀመሪያዉን የድህረ-ወሊድ ክትትል ያደረጉት መቼ ነበር?	-----ሰዓት በኋላ----- -----ቀን በኋላ----- -----ሰዎንት በኋላ-----	
20.	ስንት ጊዜ ድህረ-ወሊድ ክትትል አድርገዋል?	-----	
21.	የት ነበር ድህረ-ወሊድ ክትትል ያደረጉት?	1. የመንግስት ሆስፒታል 2. የመንግስት ጤና ጣቢያ 3. የግል ሆስፒታል 4. የግል ክሊኒክ 5. ሌላ ካለ ይጠቀስ-----	

**ስለተሳተፉ እመሰግናለን!!!**