ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

Determinants of Institutional Delivery service utilization among women who gave birth in the last two years prior to the study in Amibara district of Afar region, Ethiopia: A case-control study

By:

Girma Abebe (BSc)

Advisor: Assefa Seme (Associate Professor, MD, MPH)

A thesis Submitted to School of Public Health College of Health Sciences Addis Ababa University in Partial Fulfillment of the requirements for the Degree of Masters in Public Health (MPH)

September, 2017

Addis Ababa, Ethiopia

ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

Determinants of Institutional Delivery service utilization among women who gave birth in the last two years prior to the study in Amibara district of Afar region, Ethiopia: A case-control study**:**

A Thesis Submitted to Addis Ababa University Collage of Health Science School of Public Health for the partial fulfillment of the requirements of the Degree of Masters in Public Health (MPH)

Submitted by	Signature	Date
Girma Abebe (BSc)	_____	_____

Approved by the examining board

Chairman department graduate committee

_____ _____ _____

Advisors:

Dr. Assefa Seme	_____	_____
Mrs. Meselech Asegede	_____	_____

Examiners:

Mr. gebretsadik shibre	_____	_____
_____	_____	_____

Acknowledgement

I am deeply grateful to my Main Advisor Dr. Assefa Seme at Addis Ababa University in providing constructive critics, guidance and encouragement during preparing of this thesis proposal and for his highly professional input in reviewing and providing valuable and detailed comments that helped me to enrich this thesis.

I would like also to express my sincerely gratitude to Mrs. Meselch Asegede for her support in providing guidance and encouragement during preparing of this thesis.

I thank all individuals, especially respondent mothers who have kindly cooperated in providing the information required during the whole process and data collectors.

Table of contents

Contents

List of tables.

Page

List of Figures

Page

List of Annexes

Page

Acronyms

ANC	Ante Natal Care
EDHS	Ethiopia Demographic Health Survey
EMDHS	Ethiopia Mini Demographic Health Survey
HF	Health Facility
HSTP	Health Sector Transformation Plan
IMR	Infant Mortality Rate
IUFD	Inter Uterine Fetal Death
MMR	Maternal Mortality Ratio
MDG	Millennium Development Goals
PNC	Post Natal Care
TBAs	Traditional Birth Attendants
TT	Tetanus Toxoid
UNDP	United Nations Development Program
UNICEF	United Nations Children's Funds
WHO	World Health Organization
WRA	Woman of Reproductive Age

Abstract

Background: The key to reducing maternal mortality and improving maternal health is increasing attendance by skilled health personnel throughout pregnancy and delivery.

Objective: the study was aimed to examine determinants of institutional delivery service utilization among women who gave birth in the last two years prior to the study in Amibara woreda of Afar region, Ethiopia.

Methods: A community based case-control study was undertaken among women who gave birth in the last two years preceding the study in Amibara woreda of Afar region. Multi stage sampling technique was used to select 525 participants 175 cases and 350 controls. A pretested and structured questionnaire was used to collect data. Data entered and cleaned using Epi Data and exported to SPSS version 22 for analysis. Crude and adjusted odds ratios together with their 95% confidence intervals were calculated to examine the association between independent and outcome variables. Logistic regression analysis was done to determine independent predictors of institutional delivery service utilization.

Results: Women who had given births in the last two years prior to the study were included into the study. Five hundred and twenty five study samples were estimated and all of them were participating in the study, resulted in response rate of 100%. Only two factors, presence of preventing factors for facility based delivery (AOR= 0.24; 95%CI=0.066, 0.85; P-value= 0.027) and number of ANC visit (AOR= 5.7; 95%CI= 1.8, 18.2; P-value= 0.03) were found significantly associated with Institutional delivery.

Conclusion and recommendation: The higher the number of times a woman makes ANC visit during pregnancy, the more likely it would be that she will come for facility based deliveries. The region health bureau and the district health department should partner to keep improving the coverage of ANC.

Key words: *Institutional Delivery; home delivery; Amibara district; case control study*

1. Introduction

1.1 Back ground

Maternal mortality is a global problem[1].The majority of maternal health complications and deaths occurred in low and middle income countries where three-fourth of the deaths are due to direct obstetric complications[2]. Institutional delivery service utilization is one of the key and proven interventions to reduce maternal death, it ensures safe birth, reduce both actual and potential complications and maternal death and increase the survival of most mothers and newborns[3]. But most deliveries in developing countries occur at home without skilled birth attendants[4, 5]. Many low and middle income countries tried their best to optimize key and effective maternal health interventions to improve maternal health, but the progress made in reducing maternal deaths were very far from the Millennium Development Goal (MDG)targets and now they are trying their next ambition to achieve the target sated for Sustainable Development Goal 3.1 (a target to achieve a reduction of global maternal mortality ratio to less than 70 per 100,000 live births, in Ethiopia the impact-level targets of health sector transformation plan (HSTP) by 2020 is to reduce Maternal Mortality Ratio (MMR) to 199/100,000 live births [6].

Skilled delivery in Ethiopia is among the lowest, according to the Ethiopia Demographic Health Survey(EDHS)of2016 key report, 28 percent of births were assisted by skilled providers at the national level while the figure was below 14.7percent in Afar region[7]

Various studies indicated that cultural factors, illiteracy, poverty, distance, lack of transportation and lack of male involvement were among the factors playing roles in keeping away mothers from seeking skilled birth attendance[5, 7, 8].

1.2 Statement of the problem

Global, delivery assisted by skilled providers is the most important proven intervention in reducing maternal mortality and one of theMillennium Development Goal(MDG) indicators to track national effort towards safe motherhood. Most Sub- Saharan African countries were not met the targets pertaining to MMR. In almost all countries where health professionals attend more than 80% of deliveries, MMR is below 200 per 100,000 live births. However, birth with skilled attendance was low in Southern Asia (40%) and SSA (47%), the two regions with the greatest number of maternal deaths[9]. The adult lifetime risk of maternal mortality in women from sub-Saharan Africa was the highest at 1 in 38, in sharp contrast to 1 in 3700 among women in developed countries[9]

Ethiopia, delivery in a health facility is more common among births to mothers below age 35, births to mothers who had at least four Ante Natal Care (ANC) visits, and births to highly educated mothers and mothers in the highest wealth quintile. Urban births are six times more likely than rural births to be delivered in a health facility (59 percent versus 10 percent). The percentage of births delivered in a health facility ranges from 10 percent in Afar to 87 percent in Addis Ababa [3].
In Afar national regional state according to Ethiopia Mini Demographic Health Survey(EMDHS) 2014 Ethiopia survey report 9.1% births are in public health sector, 0.8% in privet sector with a total of10% in the health facilities and 90.1% home delivery while skilled assistance at delivery increased from 3.9-percent2005 EDHS report to 10 percent 2014 EMDHS report in the last fifteen years[3]

Institutional delivery service utilization in pastoral communities is very low[3]. There are high variations in institutional delivery service utilizations among regions of Ethiopia, with, 10% in Afar, Southern Nations Nationalities, Afar, Oromiya, Somali, and Benishangul-Gumuz regions and up to 87% in Addis Ababa. Antenatal care from a skilled provider ranges from 30% in the Afar Region up to 94% in Addis Ababa. The wide discrepancy between country and region informs concerned stakeholders that there is a long way to go for bridging maternal health service utilization gap between agrarian and pastoral communities for the country in general and the Afar Region in particular[4, 9]

The factors that were found to be associated with institutional delivery were residential place, educational level of mothers, previous history of prolonged labour, and final decision made by husbands or relatives. Those living in urban set up, literate, influenced by their husband and relative and those who had prolonged labour were more likely to deliver in modern health care.

In Afar the study done in 2005G.c shows that Ayssaita& Dubteare the two main towns in Afar regional state in the northeastern Ethiopia, relatively better equipped and access to health facilities and they have relatively settled population the result 45.8% delivered in health institution and according to other study in Afar 2012G.c study result most mothers in the study community (83.3%) had delivered at home, less than 15% had delivered in health facilities. [20] The main reason given for home deliveries was that the emergency nature of delivery did not allow the mothers to be transported to health facilities. Most mothers live in the rural areas far from health facilities, and there was no transport system[20].

In Afar Region utilization of health services, in general, and maternal healthcare service in particular is low as many other parts in the country. However, it has never been assessed so far in Afar, where 82% of the population is leading pastoralist life style, have a very low economic status, and harmful traditional practices are widely prevalent, beside this maternal health service utilizations are poorly equipped, inaccessible, negligible, and not well documented in the society. In this study area there are one hospital, four primary health centers and 16 health posts.

Little is known about the status and factors influencing the use of maternal healthcare services in Ethiopia in most regions in general, and Afar Region in particular. Institutional delivery service utilization is underutilized in Afar Region due to different constraints and obstacles. This might be due to lack of research evidences on important determinants of institutional delivery service utilization. Hence, understanding the determinants and constraints of institutional delivery service utilization in the pastoral area like in Afar Region is very crucial for proper use of the maternal health service, which is one of the most effective strategies for preventing maternal mortality.
Undertaking sound full study/research on the determinants of institutional delivery service utilization provides evidence for the improvement of maternal health care strategies in places where the general health status of women is very low[4].

Therefore, this study, aims to address this gap by attempting to explore the determinant factors that are assumed to be barriers to health institutional delivery care services in Amibara woreda of Afar region.

1.3 Rationale of the study

In Ethiopia the levels of maternal mortality is the highest in the world. One explanation for poor health outcome among a women none is use of modern service by sizable proportion in the country.
The proportion of births attended by skilled personnel is low even in areas where women have access to the services. However, it is not known why majority of pregnant women do not deliver their babies in a health institution.

There is no study done in Amibara woreda to know the determinant factors influencing the utilization of institutional delivery, where the institutional delivery service utilization is the lowest among the woredas in the region. The woreda was highly expanding with its increased population size over the last decade and thus the number of health institution did not equally increase with the population size in the woreda.

1.4 Significance of the study

I hope that the finding of this study will help policy makers to understand the underlying causes of low institutional delivery service utilization in the woreda, also will help program managers and implementers to design a tailored intervention at woreda level, primarily Amibara woreda women of reproductive age will be benefited from this study and other woredas in Afar region will be one of the beneficiaries and further may serve as an important tool for any possible program planning and interventions aimed at improving institutional delivery services utilization in the region.

Also the finding of this study will serve as a baseline information for further studies.

2. Literature review

Institutional delivery service utilization is one of the key and proven interventions to reduce maternal death [4, 5]. It ensures safe birth, reduces both actual and potential complications and maternal death, and increases the survival of most mothers and newborns[10]. Women who are delivering at health institutions are more likely to get skilled birth attendance than women who are delivering at home. This is particularly true in developing countries like Ethiopia where trained skilled birth attendants like doctors, health officers and midwives are found only in health institutions.

There are various determinant factors that are related with delivering at health institutions. Demographic factors, Socio-economic factors, Obstetric factors, health facility factors and women's decision making factors are some of the already known factors that affect utilization of health facility of delivery services.

2.1 Demographic Characteristics

2.1.1 Maternal Age

The age and multi parity are among determinants for the place of delivery, a study done in MunesaWoreda, Arsi Zone, and South East Ethiopia indicated that the age of mother has contribution to institutional delivery. Mothers less than 20 years of age during the interview were about 6 times (AOR = 6.06, 95%CI: 1.54, 23.78) more likely to deliver at health institutions than mothers more than 35 and above [4]. Also Study done in Pakistan shows that 53% of women delivery in health facilities is younger and out of that 65% are those having the first baby. Women with 35 years and above with more than five children tend to deliver home because they consider themselves as having experience so they don't need assistance from skilled workers [11]. This is evidenced by study conducted by Tefera in Sekela District, documented that multi parity and older women tend to deliver home than young women. These young women they have no experience in child births and they tend to fear complications related to pregnancy and child birth[12].

A study done in Boricha District of Sidama Zone, shows that women with gravid one more likely to choice health facility as delivery place when compared to women with gravid above five [COR (95%CI) 8.7(4.6-16.3)] and women with gravid 2-5 also more likely to choice health facility than women with gravid above five [COR (95%CI 3.03(1.7-5.3)] [13].

2.1.2 Mother's and Husband's level of education

mother's literacy level is also important determinant of place of delivery as those with non-formal education tend to deliver at home, and those educated tend to give birth's in health facilities[14].Study in India showed Women's with higher education were more likely to undergo skilled institutional delivery, OR =2.06, 95%CI 1.33-3.19) [15] .On the other hand a study done in Ethiopia indicates women with no education were less likely to use the service. The odds of use of such services was four and a half times and eight times higher for women with primary and secondary or higher levels of education, respectively, compared to women with no education (8, 24).A study that was conducted in Woldia, Ethiopia showed Mothers who had secondary & above educational level were more likely to utilize institutional delivery service than those who cannot read and write (AOR 15 & 95% CI=4.31-54.8)[16]

Regarding the educational status of husbands, mothers whose husband attended secondary school and above were 2.7 times (AOR=2.7 and 95%CI=1.19, 6.24) more likely to deliver on health institutions as compared to mothers whose husbands were unable to read and write. Institutional delivery was significantly higher amongst the respondents whose husbands had higher education as compared to those who had low education ($p<0.05$)[17].

2.2 Socio economic Characteristics

2.2.1 Wealth status of a family

Household wealth status of a family could positively affect skilled delivery utilization because wealthy families can afford to pay for transport, hospital charges and medications as opposed to poor families. A study done in Afghanistan revealed that household wealth were associated with higher use of skilled birth attendants, including being wealthier, having motorized transport, and having had a family member previously visit the health facility[18]. Another study done on factors influencing the utilization of maternal health care services indicates wealth index of the household has a positive effect on the odds of skilled attendance during delivery. The reason is that women from households with higher economic status have power of affordability and have greater exposure to accessing relevant information and knowledge regarding issues related to maternal and child health ([18, 19].

In the urban areas, delivery is significantly associated with the income of the household, whilst it is not a factor for the rural. This is probably because in the rural settings, whether the mother has money or not, there is no transport and no time to take a laboring mother to health facilities[20].

House hold financial capacity is one of the major factors in the determination of maternal health service utilization and this depends on mother occupation and husband occupation. Women who are working and earning money may be able, to save and decide to spend it on a facility delivery. Several studies find that farming women are less likely to have ANC and skilled attendance at delivery than women in other occupations[11]. This may be due to limited financial resources and health services in rural areas. Wives of husbands with higher status occupations could be more able to use facilities for delivery.

High status occupations are associated with greater wealth, making it easier for the family to pay costs associated with skilled delivery care. A limited ability to pay and high hospital costs have been identified as the major barriers for the rural poor wishing to access health care, due to economic difficulties in rural areas women are not able to afford costs related to deliveries even if the services in some places are free of charge they unable to pay for transport in case of referral or the facility is away from home [21].

2.3 Obstetric factors

Women with gravid one more likely to choice health facility as delivery place when compared to women with gravid above five [COR (95%CI) 8.7(4.6-16.3)] and women with gravid 2-5 also more likely to choice health facility than women with gravid above five [COR (95%CI 3.03(1.7-5.3)] [22].ANC follow up were also found to be a strong predictor of institutional delivery service utilization. A study from Amhara region North Shewa zone showed that women who had made at least one ANC visit were at least six times more likely than women with no ANC visits to give birth at health facility[23]. Similarly, women residing in communities with high ANC utilization rate were 55 % more likely (AOR = 1.55; 95 % CI 1.132–2.127) to give birth at health institutions than women residing in communities with low ANC utilization rate [22].

Proportion of women who delivered in health institution with skilled care at delivery increased with knowledge of birth related complications from 1.4% among women who did not mention any to 8.7% among those who mentioned birth related complications (p <.001). Women who reported that they had previous history of abortion also have an increased chance to use health

facilities for delivery compared to those who had no previous history of abortion (OR 8.85 (95%CI (2.58-30.36)) [13].

According Mini EDHS2014 report, delivery in a health facility is more common among births to mothers below age 35, births to mothers who had at least four ANC visits, and births to highly educated mothers and mothers in the highest wealth quintile [3].

2.4 Health services related factors

2.4.1 Distance from Health Facility and lack of transport

Distance from home to the health facility is one of the barriers to utilization of health facility for skilled delivery purposes. Mothers who are closer to the health facility may use skilled delivery more than those who are far away. A study done in Nepal shows that significantly higher proportion of respondents who had residents nearby the health facility (≤2Km) had delivered at health facility ($p<0.05$)[24]. Families who cannot afford to pay for transport or service are less likely to use institutional delivery services. A study done in Nigeria showed that long distance to health facility, unavailability of means of transportation and lack of money for transportation were among the factors that were responsible for non-utilization of health facilities for skilled birth [25]. Unreliable transport is also a barrier to access skilled delivery in rural areas, failure to plan in advance for transport cause higher number of women to deliver in their homes even if they had planned to deliver in health facilities[24].

2.4.2 Status of health facility services and staff technical capacity

Another important consideration for health facility service utilization is the technical capacity of staff members in addition to the availability of quality services and medications. Women do not want to face unfriendly and hostile environment particularly during delivery.

A study done in Nigeria indicated that unsatisfactory services at health facility, unfriendly attitude of staff of the health facility and unavailability of staff at health facility were some of the reasons for not using health facility for delivery purposes[25].

Inadequate knowledge and skills for health workers on management of obstetrics cases can be the barrier for delivery in health facilities, several study found that health workers tend to unnecessary refer pregnant mother to higher level because they don’t know to use partogram. This woman will never come back to that facility due to unnecessary referral to other health facility [26]. Health provider behavior and attitudes are also determinant factor for a choice of

place of delivery for pregnant mother, some of the health workers are very rude and using abusive language these attitudes prevent the women to deliver in health facilities however positives attitudes of health workers attract women to deliver in health facilities[27].

Research question

What are factors that could affect institutional delivery service utilization in Amibara, Afar?

Hypothesis

1. Women who were using ANC services are more likely to have birth at facilities than those who did not.

2. Women who faced cultural preventing factors are more likely to have births at home than those who did not**.**

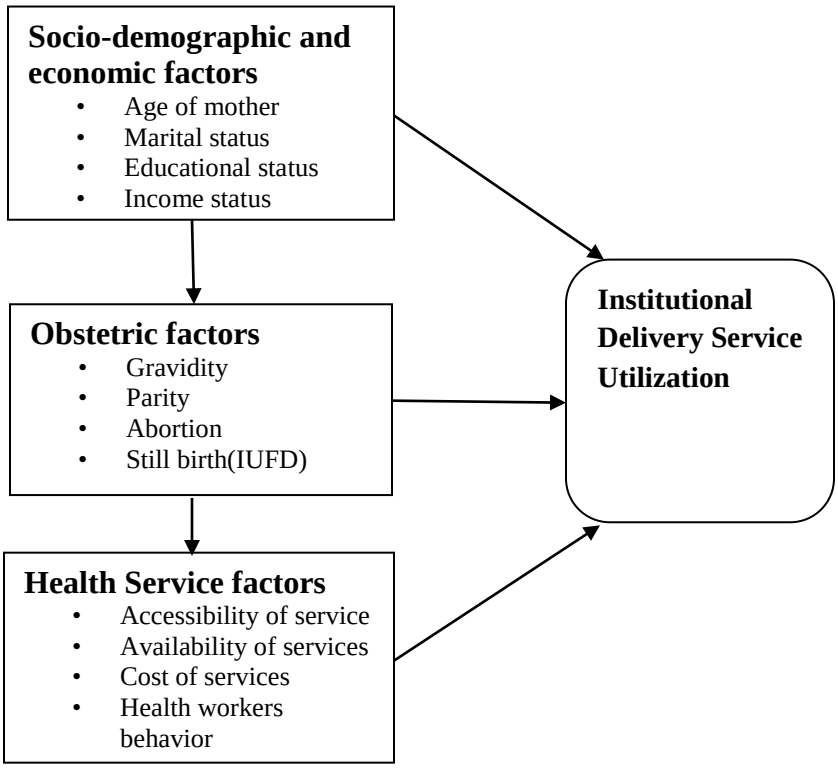

Figure1. Conceptual framework for factors influencing utilization of institutional delivery

Source: Adopted from conceptual framework 'Determinants of delivery practices among Afar pastoralists of Ethiopia" [20].

3. Objective of the Study

3.1 General Objective

To assess determinants of institutional delivery service utilization among women who gave birth in the last 2 years prior to the study in Amibara woreda of Afar region, Ethiopia.

3.2 Specific Objectives

1. To identify social demographic factors affecting utilization of institutional delivery services utilization among women who gave birth in the last 2 years prior to the study in Amibara woreda.

2. To explore health service related factors that determine utilization of institutional delivery services among women who gave birth in the last 2 years prior to the study in Amibara woreda.

3. To explore obstetric related factors that determine utilization of institutional delivery services among women who gave birth in the last 2 years prior to the study in Amibara woreda.

4. Methods

4.1 Study area and period

The study was conducted in Afar regional state, Amibara woreda. Amibara is one of the 32 woredas in the region, covers an area of 3,994 square kilometers. The capital city of the woreda is Andido which is found at 270 km and 304 km away from Addis Ababa and Semera respectively on the truck of high way to Djibouti.

Amibara woreda is bordered on the south by Awash Fentaly woreda, on the west by Dulecha woreda, on the north by Bermudytu woreda and on the east by Oromia Region. This woreda is divided in to 19 kebeles (three urban and sixteen rural kebeles). The total Population of the woreda by the year 2009E.C estimated to be 79,825 from which 42,533 are males and 37,292 are females. The total number of women in reproductive age (15-49years) estimated to be 18,200 based on the conversion rate of the region (22.8%).There are four health centers, one zonal hospital and 16 health posts. According to the woreda health office 2009E.c report, the health service coverage of the woreda is with 76% antenatal coverage and institutional delivery is 45% and 28% respectively. The study was conducted from June 10-25, 2017.

Definitions of cases and controls:

Cases: Women of childbearing age (15 – 49 years) who gave birth at health institutions (public or private) in the last two year irrespective of the outcome of the pregnancy.

Controls: Women of childbearing age (15 – 49 years) who gave birth at home in the last two year irrespective of the outcome of the pregnancy.

4.2 Study design

A case-control study will be conducted among all women of childbearing age (15 – 49 years) who gave birth in the last two year preceding the study in Amibara woreda of Afar region.

4.3 Source of population

The source of population were all women of childbearing age (15-49) who reside in Amibara woreda.

4.4 Study population

The study participants were women of reproductive age (15-49) who gave at least one birth within the last two year preceding the study from the selected 6 kebels in the woreda.

4.5 Eligibility criteria

4.5.1 Inclusion criteria

-Women of child bearing age (15-49 years) who have delivered at least one birth in the last two year preceding the study in the study area are eligible.

4.5.2 Exclusion criteria

Critically ill women and not permanent (<6months) resident of the woreda during data collection in the study area.

4.6 Sample size determination

The sample size determination for the magnitude of institutional delivery service utilization was computed with the assumption of Confidence interval of 95%, Critical value z = 1.96 (from significance level α = 5%), degree of precision, w = 5%, design effect=2 and non-respondent rate=10%. In Afar Regional state, the current institutional delivery percentage was =14.7%[28]and the sample size was calculated using the following formula for single population proportion:

$$n = \frac{(Z\ \alpha/2)^2 * P\ (1-P)}{d^2}$$

$$n = \frac{(1.96)^2 * 0.147(1-0.147)}{(0.05)^2}$$

$$n = 193$$

Therefore, this sample is multiplied by design effect of 2and 10% non-response rate is added andthe final sample size estimated to be 424.

Alternatively, sample size was calculated by considering proportion of explanatory variables using institutional delivery background characteristics with the following assumptions, on the base of EDHS2016report. The respective sample size for each explanatory variable was calculated using the formula for comparisons of double population proportions shown below and open Epi info version 7.The common parameter were power 80%, level of statistical significance 1.96 and Case to control ratio = 1:2

Considering EDHS 2016[28]key report institutional delivery background characteristics, the sample size calculated with the assumptions provided under the following tables:

Table 1. Sample size determination by background characteristics of institutional delivery

Factors		α	Power (β) or % chance of detecting)	Ratio of Controls to Cases	Hypothetical proportion of controls with exposure	Hypothetical proportion of Cases with exposure	Least extreme Odds Ratio to be detected	Sample size		
								cases	Controls	Total
Mother Education	At least primary	95	80	2:1	76.2	22.5	0.09	12	24	36
	No education	95	80	2:1	90.4	8.8	0.01	5	10	15
Wealth	Highest	95	80	2:1	42.3	56.5	1.77	154	322	**479**
	Lowest	95	80	2:1	94.4	5.1	0.003	4	8	12

This sample (480) was added to 10% non-response rate and the final sample size of both specific objectives estimated to be **525**. Since**525** accommodate all the assumptions, for single and double population proportion, it was taken as the final working sample size to meet all the objectives for which the sample size is calculated. The final sample size was 525 of 175 cases and 350 controls.

4.7 Sampling Procedure

Multi-stage sampling techniques was employed to select study participants. Amibara woreda was purposely selected from the region. In the first stage of sampling selection process, 6 kebeles were randomly selected from among a total of 20 kebeles in the woreda. A complete list of households with women who had delivered in facility and at home in each of the sampled six kebeles was carried out separately ahead of selection of households, which was done in collaboration with each kebele's Health Extension Worker, kebele administer, woreda administer and also reviewing kebele health post (family folder) pregnant woman registration list of the last two years. In the second stage of sampling, pre-specified number of households were randomly selected from each of the six kebeles using simple random sampling technique. The sample size was distributed to the 1 urban and 5 rural kebeles proportional to the size of their households (both facility delivered women and women who had had home delivery). If there were two or more mothers in the same household only one was taken via lottery method. If mothers gave two birth with in the last two years only the resent was taken.

For each case, two consecutive controls were selected from each kebele. (Figure 2)

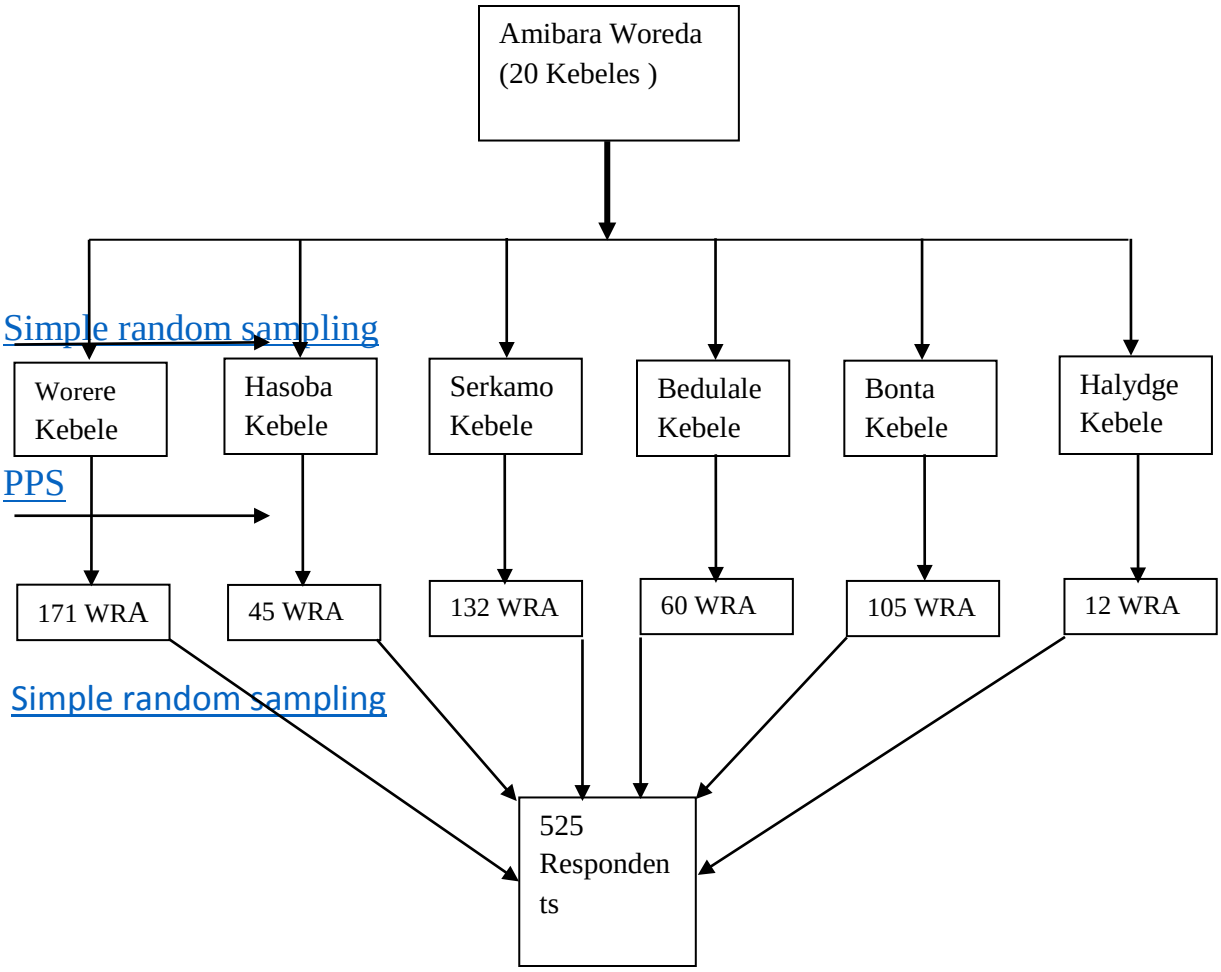

Figure.2: shows a schematic presentation of the sampling procedure or technique.

4.8 Study variables

4.8.1 Dependent variables

Place of delivery

4.8.2 Independent variables

-**Socio-demographic and cultural variables**: age, religion, education, marital status, ethnic group, occupation, of women, husband influence &related

-**Obstetric history related variables:** gravidity, parity, abortion, still birth, IUFD

-**Health service accessibility variable**: type of health facility and distance to health facility, transportation during institutional delivery service

4.9 Operational Definitions of study variable

Access to health facility:

-**Distance:** is measured in kilometers from home to the nearest health facility. This is measured in which distance > 5km from home to health facilities are said to be far. (< 5km = Accessible > 5km = Inaccessible)

-**Travel time**: Travel time to nearest health facility. (> 1hr = Inaccessible< 1hr = Accessible)

4.10 Data Collection Tools and Procedures

4.10.1 Data collection tools

Data was collected via a pretested structured questionnaire adapted from EDHS and different literatures. The questionnaire was first prepared in English and translated into local Amharic language.

4.10.2 Data collection Procedures

Interviewer administered structured questionnaire was used to collect data from sampled households. The questionnaire was first developed in English and translated in to local Amharic language, and then translated back in to English by the third person to check the consistency. Ten nurses were recruited to collect data and were trained on techniques of data collection, and the sampling procedures were elucidated to them. Mothers who had delivered in the past 2 years were interviewed on various characteristics and their delivery related issues. Mothers in the household who were absent during the first day of data collection were interviewed in the subsequent days until the final day of data collection.

4.10.3 Data Quality Control Methods

Both data collectors and a supervisor were trained on such issues as the techniques of data collection and or face to face interview skills. The training also covered the importance of disclosing the possible benefits and purpose of the study to the study participants before the start of data collection. Mechanisms of maintaining the confidentiality of the participants throughout the whole process of data collection and the study were discussed and ascertained during the two days long training. A supervisor was trained on how to check the completeness and consistencies of questionnaires filled by the data collectors to ensure the quality of the data, and also, the researcher visited data collectors twice a day to check whether they collect the data appropriately. The researcher evaluated the data during the data analysis stage to verify the completeness of the collected data. Pre-test was carried out on the10% of the sample in none study area and the questions was then revised based on the response obtained so that questions that induced ambiguity were rephrased. EpiData was used for data entry in order to reduce errors.

4.11 Data management, analysis and interpretation

The data was entered in to the Epi-Data version 3.1 up on creating the questionnaire template in the QES file of the software. The entered data subjected to cleaning using simple frequency and tabulation to ensure the validity of the data. Then, the analysis was made with IBM SPSS version 22 after exporting the prepared data. Descriptive statistics such as frequency distribution, cross tabulation and some measure of central tendency and variability (mean and standard deviation) were computed to describe the major variables of the study. Odds ratio and p-value were computed to see whether any relationship exists between the exposure and outcome variables. P-value less than 0.05 considered statistically significant. Binary logistic regression was done to see the effect of each of the independent variables on the outcome variable by simultaneously suppressing the effect of extraneous variables.

4.12 Ethical considerations

Ethical clearance for the start of the study was obtained from Research Ethical Committee of School of Public health of Addis Ababa University. Also, permission for the study was obtained from Afar Regional State Health Bureau. Verbal informed consent was obtained from participants after a detailed explanation on the purpose and benefit of the study right before the individual data collection. Data collectors and a supervisor were told to help participants involved in the study only willingly by clarifying them the objective and purpose of the study. The participants were told that their failure to participate in the study were not result in any form of penalty and assured that they can quit from the study any time they want. And, also, participants get explained that the data collection procedure was entirely be accomplished anonymously together with observance of the necessary confidentiality pertaining already

solicited information. The advantages of their honest decision and response to the successful completion of the study was briefed to the participants to help them involved in the research only willingly.

4.13 Dissemination of the study

The results of the study will get presented to the public defense and following which the final edition (revision) will be disseminated to Graduate School of Addis Ababa University through hard and soft copies. Dissemination of the result will also be made to Afar regional health bureau, Amibara woreda Health office and Werer health center through hard/ or softcopies found appropriate. Also, manuscript(s) will get submitted for publication in peer reviewed scientific journal.

5. Result

Five hundred and twenty five study samples were estimated and all of them were participating in the study, resulted in response rate of 100%. The unmatched case control study design assumed the one to many scenarios (two controls, or home deliveries, for each case, or facility based delivery) to improve the power of the study. Accordingly, 175 women with facility based deliveries and 350 women with deliveries at their or their neighbors' home were interviewed to answer on a multitude of questions from their socio-demographic, cultural and service related backgrounds.

Among women aged between 15 to 19 years, 11(2.1%) had delivered at home and 4(0.8%) at facilities. The largest percentage of participants were above 30 years for both health facility based 110(21.1%) and home deliveries 223(42.7%). Among women who were house wife, nearly 60% (314) had births at home and nearly a quarter (141) had births attended by skilled professionals. One hundred and seventy eight mothers had history of ANC attendance some time during pregnancy, 106(60%) of whom had given birth at health centers and or hospitals. Out of a total of 14 women who were attending ANC four times, 13(93%) of them had institutional delivery compared to only 1(7%) mothers out of 356 women who delivered at home. Nearly 60%(86) of respondents who had births at facility agree to the fact that every pregnancy is at risk compared to about 40%(63) of home delivered women. (**Table. 2)**

Table. 2 Selected characteristics of the respondents, Afar, Ethiopia, 2017.

Variables	Place of delivery	
	Home	Health Facility
Age of the mother (in years)		
15-19	11(2.1%)	4(0.8%)
20-30	123(23.6%)	51(9.8%)
>30	223(42.7%)	110(21.1%)
Total (N=522)	357(68.4%)	165(31.6%)
Marital status		
Single	2(0.4%)	1(0.2%)
Married	353(67%)	160(30.5%)
Divorced	1(0.2%)	1(0.2%)
widowed	3(0.6%)	1(0.2%)
Total (N=525)	359(68.4%)	166(31.6%)
Maternal education		
Illiterate	315(60%)	114(21.7%)
Read and write	24(4.6%)	24(4.6%)
Primary	9(1.7%)	21(4%)
Secondary	5(1%)	4(0.8%)
Certificate	3(0.6%)	1(0.2%)
Diploma	3(0.6%)	2(0.2%)
Total (N=525)	359(68.4%)	166(31.6%)

Maternal occupation		
House wife	314(59.8%)	141(26.9%)
Cattle rearing	4(0.8%)	4(0.8%)
Farming	5(1%)	0
Employed	18(3.4%)	12(2.3%)
Daily worker	3(0.6%)	1(0.2%)
Entrepreneur	15(2.9%)	8(1.5%)
Total (N=525)	359(68.4%)	166(31.6%)
Husband education		
Illiterate	321(61.1%)	115(21.9%)
Read and write	26(5%)	36(6.9%)
Primary	8(1.5%)	10(1.9%)
Secondary	3(0.6%)	2(0.4%)
Certificate	1(0.2%)	3(0.6%)
Total (N=525)	359(68.4%)	166(31.6%)
Husband occupation		
Livestock herding	355(67.6%)	146(27.8%)
Farming	1(0.2%)	1(0.2%)
Employed	0	3(0.6%)
Daily worker	2(0.4%)	16(3%)
Total (N=524)	358(68.2%)	166(31.6%)

Family life style		
Semi cattle rearing	36(6.9%)	44(8.4%)
Cattle rearing	321(61.1%)	114(21.7%)
Semi cattle semi farming	1(0.2)	8(1.5%)
Total (N=524)	358(68.2%)	166(31.6%)
Gravidity		
1	115(21.9%)	48(9.1%)
2	127(24.2%)	53(10.1%)
3	75(14.3%)	37(7%)
4	29(5.5%)	18(3.4%)
>=5	13(2.5%)	10(1.9%)
Birth Order		
1	115(21.9%)	50(9.5%)
2	127(24.2%)	51(9.7%)
3	75(14.3%)	37(7%)
4	29(5.5%)	18(3.4%)
5	13(2.5%)	10(1.9%)
Total (N=525)	359(68.4%)	166(31.6%)
Number of live births		
1	117(22.3%)	50(9.5%)
2	126(24%)	55(10.5%)
3	74(14.1%)	38(7.2%)

4	29(5.5%)	19(3.6%)
5	13(2.5%)	4(0.8%)
Total (N=525)	359(68.4%)	166(31.6%)
History of abortion		
Yes	10(43.5%)	13(56.5%)
No	349(69.5%)	153(30.5%)
Total (N=525)	359(68.4%)	166(31.6%)
History of still birth		
Yes	8(28.6%)	20(71.4%)
No	351(70.6%)	146(29.4%)
Total (N=525)	359(68.4%)	166(31.6%)
History of ANC		
Yes	72(40.4%)	106(59.6%)
No	287(82.7%)	60(17.3%)
Total (N=525)	359(68.4%)	166(31.6%)
Number of ANC visit		
1	51(71.8%)	20(28.2%)
2	18(29.5%)	43(70.5%)
3	2(6.3%)	30(93.7%)
4	1(7.1%)	13(92.9%)
Total (N=525)	359(68.4%)	166(31.6%)

ANC visit site		
Hospital	3(100%)	0
Health center	29(52.7%)	26(43.7%)
Health post	40(33.6%)	79(66.4%)
Home	0	1
Total (N=525)	359(68.4%)	166(31.6%)
Problem during the current labor		
Yes	29(46%)	34(54%)
No	330(71.4%)	132(28.6%)
Total (N=525)	359(68.4%)	166(31.6%)
Duration of labor(in hrs)		
12		
24		
48		
Distance to HF <5kms	5(12.8%)	34(87.2%)
Time to reach nearest HF(in minutes)		
<30	54(62.1%)	33(37.9%)
>=30	305(69.6%)	133(30.4%)
Total (N=525)	359(68.4%)	166(31.6%)
Danger sign of pregnancy		
Yes	82(43.9%)	105(56.1%)
No	277(82%)	61(18%)
Total (N=525)	359(68.4%)	166(31.6%)

Advantages of having birth at Health Facility		
No advantage	57(100%)	0
Appropriate place	4(44.4%)	5(55.6%)
SBA are available	58(34.3%)	111(65.7%)
Sufficient delivery materials	18(37.5%)	30(62.5%)
Both appropriateness-		
of the place and availability of SBA	1	0
Has home delivery a risk?		
Yes	47(28.5%)	118(71.5%)
No	312(86.7%)	48(13.3%)
To whom is it the risk?		
Mother	20(33.9%)	39(66.1%)
Baby	7(20.6%)	27(79.4%)
Both	20(27.8%)	52(72.2%)
Every pregnancy is at risk		
Agree	63(42.3%)	86(57.7%)
Disagree	97(78.9%)	26(21.1%)
Presence of preventing factor to facility delivery		
Yes	269(76.4%)	83(23.6%)
No	90(52%)	83(48%)

Health service quality		
Very good	5(11.9%)	37(88.1%)
Good	30(19%)	128(81%)
Bad	22(95.7%)	1(4.3%)
Health professional's approach		
Very good	6(23.1%)	20(76.9%)
Good	65(33.5%)	129(66.5
Bad	42(71.52%)	17(28.8%)
Means of transportation for referral		
On foot	64(78%)	18(22%)
Public transport	130(68.1%)	61(31.9%)
Ambulance	157(64.9%)	85(35%)
Other	8(80%)	2(20%)

Characteristics affecting place of delivery of the respondents

Many factors were found to impact the latest place of delivery of the study's participants. However, the associations of almost all of the factors faded out upon controlling effect of confounding variables. The odds of being exposed to 2 or more ANC visits was higher among women who delivered at health facilities (AOR=5.7; 95% CI= 1.8,18.2;P-value=0.03) than the odds of being exposed to 2 or more ANC attendances among home delivered women. The odds of exposure to facility delivery risk factors was lower among women who delivered at health facility (AOR= 0.24; 95%CI; 0.066, 0.85; P-value= 0.027) than among home deliveries. (**Table.3**)

Table 3. Characteristics affecting the place of delivery of the respondents, Afar, Ethiopia, 2017.

Variables	COR(95%CI)	AOR(95%CI)	P-value
Age (in yrs)			
15-19	0.737(0.23,2.37)		
20-30	0.841(0.564, 1.252)		
>=30	1		
Marital status of mother			
Married	0.45(0.144, 1.427)		
*Other	1		
Educational status of mother			
Illiterate	0.259(0.14, 0.477)		
Read and write	0.714(0.319, 1.599)		
Primary and above	1		
Educational status of husband			**0.538**
Illiterate	*0.287(0.13, 0.63)*	*0.95(0.04, 8.19)*	
Read and write	1.11(0.445, 2.756)	2(0.08. 9.48)	
Primary and above	1	1	
Occupation of husband			**0.592**
Livestock herding	0.082(0.028,0.245)	0.45(0.025, 8)	
Other	1		
Life style of family			**0.176**
Pastoralist	0.26(0.162, 0.415)	2.5(0.66, 9.57)	
Other	1		

Number of pregnancy			
1	1		
2	1(0.628, 1.59)		
3	1.18(0.704, 1.984)		
4	1.487(0.755, 2.9)		
5	1.84(0.756, 4.49)		
Birth order			
1	1		
2	0.924(0.58, 1.47)		
3	1.135(0.678,1.899)		
4	1.428(0.727, 2.81)		
5	1.769(0.727, 4.3)		
Live birth			
1	1		
2	1.02(0.646, 1.615)		
3	1.022(0.72, 2.006)		
4	1.53(0.787, 2.986)		
5	0.72(0.224, 2.14)		
History of abortion			
Yes	3(1.27, 7.0)	-	
No	1		
History of still birth			**0.146**
Yes	6(2.56, 14)	5.5(0.55, 54.7)	
No	1		
History of ANC			
Yes	7(4.68, 10.6)	-	
No	1		
***Number of ANC visit**			**0.03**
1	1		
2 or more	10(5.2, 21.14)	5.7(1.8,18.2)	
Problem during labor			**0.854**
Yes	2.9(1.71, 5.00)	0.87(0.187, 4.01)	
No	1		

Time to reach health facility			
Less than 30 minutes	1.4(0.868, 2.262)		
30 or more minutes	1		
Danger sign of pregnancy			**0.754**
Yes	5.82(3.896, 8.677)	1.3(0.289, 5.5)	
No	1		
Has home delivery a risk?			**0.08**
Yes	16(10.4, 25.7)	3.6(0.85, 14.8)	
No	1		
Every pregnancy is at risk			**0.547**
Agree	5(2.94, 8.75)	0.7(0.17, 2.5)	
Disagree	1		
Health professionals' approach			**0.907**
Very good	8(2.8, 24)	1.2(0.1, 14)	
Good	4.9(2.9, 9.3)	1.5(0.24, 8.89)	
Bad	1	1	
***Preventing factors for facility based delivery**			**0.027**
Yes	0.335(0.227, 0.49)	0.24(0.066, 0.85)	
No	1		
Means of transport			**0.271**
On foot	0.55(0.32, 0.967)	0.399(0.08,2.1)	
Transport	1		

**** associated at p-value=0.05***

6. Discussion

The present study tried to investigate a range of factors that could predict place of delivery in one of the districts of Afar regional state. The position of parents in terms of occupation and education background could affect the decision of the mother on her place of delivery. In this study, the largest percentage of births (both facility based and home) were concentrated among poorly educated families, or Illiteracy dominates in recent births in the study area. Most of our participants were housewife and had husbands who relied on livestock herding activities. History of abortion, still birth and ANC attendance, experiencing problems and or danger signs during current pregnancy and or labor are more common among women who had facility deliveries than in women had home deliveries though not significantly different. When previous pregnancy outcomes are unfavorable in terms abortion or still birth, the woman might develop a fright that her subsequent pregnancies would similarly end up in one of these adverse outcomes, and that she would be galvanized to have her forthcoming births attended by qualified health personnel. Although ANC attendance could not invariably lead to utilization of skilled care at birth, It is recognized that skilled ANC service during the time of gestation could substantially help the woman make facility based delivery decision[5, 8, 29]. Birth Preparedness and Complication readiness(BPCR), a behavior based intervention, has become in the center stage of the new ANC package of World Health Organization[30]. Among other things, instructing the ANC attendee about the potential obstetric repercussions that would otherwise wreak havoc the health of woman-infant or baby dyad is among the components of the multi-sided strategy, BPCR[30].

The belief that every pregnancy is at risk was better understood by women who had delivered at facilities. This gives a lot of sense that women who are aware that every pregnancy would be marred by unforeseen obstetric complication have higher chance of getting themselves in health facility for having skilled delivery care. In similar manner, agreeing to the *'home delivery carries risks'* and residing within 5kms from the nearest health institution were found to dominate facility based deliveries. The closer women are from the nearest delivery care offering health facilities, the higher the odds for them to come and receive the service [31],whereas women who resides far from the health care facility have smaller odds of utilizing the service[25]. Availability of such functional facilities in the vicinity of mothers could ultimately contribute to hitting maternal health related Sustainable development Goals. As a matter of fact, all women

and the community should understand that home based delivery has risks both for laboring mother and fetus and or new born baby because obstetric complications are unpredictable[32]. In this study, experiencing danger signs while pregnant was common among facility deliveries than home deliveries. Understanding the major danger signs that could complicate pregnancy has become an essential component of Birth Preparedness and Complication readiness strategy. The better women are at identifying the potential devastating signs of pregnancy, the higher the probability for them to have births attended by skilled providers[30]. Health care providers approach to women who have come for delivery service is increasingly being given more attention these days. Lack of caring and respectful approach can hold our mothers back from obtaining the service. The current study asked the study participants to label the health care professionals' approach and indicated that the 'good' and 'very good' health care attendants were so-labeled by women in the facility delivery category more frequently than among home deliveries. This can be translated to the fact that perception that skilled birth attendants are not caring propels women from giving birth at facility.

These differentials between the cases and controls in terms of various exposures are, however, not statistically significant. Only two factors: number of ANC visit and presence of preventing factors (for facility based delivery) remained significantly associated with the place of delivery after confounding variables were controlled for. The odds of being exposed to 2 or more ANC visits was higher among women who delivered at health facilities than the odds of being exposed to 2 or more ANC attendances among home delivered women. As the number of ANC attendance increases to at least the World Health Organization's recommended four times[33], so does the probability of institutional delivery. On the other hand, the odds of exposure to facility delivery preventing factors was lower among women who delivered at health facility than among home deliveries. Women who reported that they had traditional and cultural barriers to prefer homes to health institutions had their births attended by non-skilled delivery attendants. Factors such as perceived and or actual lack of conducive facility environment, abusive treatment by health care providers, either unable to afford transport costs or lack of transport service, husband opposition, and becoming interested in giving birth at home were the major deterrent factors reported by the participants in this study. Institution environments need to be made sufficiently similar to that of the mother's home if the aim is to improve Skilled Birth Attendance to any

meaningful level[34]. In this study, physical violence and humiliation were the most frequently mentioned barriers to hold women back from getting skilled delivery care. Infect, disrespect and abusive treatment by health care providers are the major factors to prevent women from getting skilled delivery care than do the most frequently cited physical barriers such as cost and distance [34]. Strongest possible commitment at the central government level and meaningful engagement of the community and the media towards advocating Respectful Maternity Care (RMC) could help achieve our target of improving skilled delivery care[35]. That means incorporation of Respectful Maternity Care(RMC) to the higher institution training program could be a valuable option to help health professionals acquire skills and knowledge necessary to advance utilization of skilled and clean delivery care[34].

7. Strength and limitation of the study

7.1 Strength of the study

- ✓ The survey is community based which is very approximate to the reality.
- ✓ The study subjects were selected by simple random sample and the respondent rate were almost all 100%.
- ✓ Data collectors were Nurses who have exposure and experience in data collection.

7.2 Limitation of the study

- ✓ This study did not include different woredas' in the Region, which might affect its generalizability to the region or other regions.
- ✓ The study was not supported by qualitative method.
- ✓ Since the study relies on report of mothers, memory relapse and forgetfulness could have biased the findings of the research and readers should exercise cautions to in up taking the result of the study.

8. Conclusion and recommendation

8.1Conclusion

The study confirmed that women who are experiencing one or more of factors namely perceived and or actual lack of conducive facility environment, abusive treatment and or humiliation by health care providers, either unable to afford transport costs or lack of transport service, reportedly presence of cultural factors in the household and husband opposition were determined to be the major blockades that stops women from using the skilled delivery service. The higher

the number of times a woman makes ANC visit during pregnancy, the more likely it would be that she will come for facility based deliveries.

8.2Recommendations

- Local health departments, communities, religious leaders and health extension workers should work together to improve RMC during while at birth
- Health Extension workers should regularly elucidate importance of husband partnership on receipt of delivery care by woman during a home to home visit, or community gatherings.
- The region should expand built of health infrastructures in the district.
- The region health bureau and the district health department should partner to keep improving the coverage of ANC

9. References

1. **Zureick-Brown S. Understanding global trends in maternal mortality.IntPerspect Sex Reprod Health. 2008;32–41.** .
2. **WHO, UNICEF, UNFPA, The World Bank and United Nation Popu¬lation Division. Trends in MaternalMortality:1990to2013;2013.Availablefromhttp://www.who.int/reproductive health/publications/monitoring/maternal-mortality-2013/en/. Accessed February 4, 2015.** .
3. **CSA [Ethiopia]. Ethiopia Mini Demographic and Health Survey 2014. Addis Ababa, Ethiopia; 2014.** .
4. **World Health Organization (WHO). The World Health Report 2005. Make Every Mother and Child Count. Geneva: WHO; 2005:500–507.** .
5. **Amano et al.: Institutional delivery service utilization in Munisa Woreda, South East Ethiopia: a community based crosssectional study. BMC Pregnancy and Childbirth 2012 12:105.**
6. **Fedral Ministry of Health. Health sector Transformation Plan(HSTP) 2015/16-2019/20. 2015.**
7. **Federal Democratic Republic o Ethiopia. Ethiopia Demographic and Health Survey, 2016, Key Indicators Report, Central Statistical Agency, Addis Ababa, Ethiopia October 2016.**
8. **Birmeta et al.: Determinants of maternal health care utilization in Holeta town, central Ethiopia. BMC Health Services Research 2013 13:256.**
9. **WHO: Trends in maternal mortality: 1990 to 2013. Estimates by WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division. In.; 2014.**
10. **CSA [Ethiopia] and ICF International. Ethiopia Demographic and Health Survey 2011. Addis Ababa Ethiopia and Calverton, Maryland, USA: Central statistical Agency and ICF International; 2012.**
11. **Agha, S. and T. W Carton (2011). "Determinants of institutional delivery in rural Jhang, Pakistan. International Journal for Equity in Health 2011 10:31.".**
12. **Teferra, A., F. Alemu,. (2012). " Institutional delivery service utilizationand associated factors among mothers who gave birth in the last 12 months in Sekela District, North West of Ethiopia: A community - MC Pregnancy and Childbirth 12:74.".**
13. **Tadele T, Tamiso A, Tadele T: Factors Associated with Institutional Delivery in Boricha District of Sidama Zone, Southern Ethiopia. International Journal of Public Health Science (IJPHS) December 2014, 3(4).**
14. **KestertonA,ClelandJ, Sloggett A and RonsmansB.Institutional delivery in rural India: The relative Importance of accessibility and economic statusBMCPregnancy and Childbirth2010; 10(30): 6-7.**
15. **Nair M, Ariana P and Webster P. What influences the decision to undergo institutional delivery by skilled birth attendants? A cohort study in rural Andhra Pradesh, India. Rural and Remote Health2012; 12(2311):1445-6354.**

16. **Awoke, W., J. Muhammed,. (2013). "Institutional delivery service utilization in Woldia, Ethiopia" Science Journal of Public Health.**
17. **Feyissa TR, Genemo GA: Determinants of Institutional Delivery among Childbearing Age Women in Western Ethiopia, 2013:Unmatched Case Control Study. PLoS ONE 2014, 9(5).**
18. **Mayhew M, David, Edward A, LakhwinderS,Dwivedi V, MashkoorAand Burnham G. Determinants of Skilled Birth Attendant Utilization in Afghanistan: A Cross-Sectional Study American Journal of Public Health | October 2008; 98 (10):1950-1953.**
19. **MekonnenY and Asnaketch M. Utilization of Maternal Health care Services inEthiopia.J. Health Popul Nut. 2003; 21(4):374-382.**
20. Mekonnen MG, Yalew KN, Umer JY, Melese M: Determinants of delivery practices among Afar pastoralists of Ethiopia. Pan Afr Med J2012, 1(17).
21. **Shiferaw, S., M. Spigt, et al. (2013). "Why do women prefer home births in Ethiopia?. BMC Pregnancy and Childbirth " 13(5).**
22. **Zeleke A. Mekonnen, Wondwossen T. Lerebo, Tesfay G. Gebrehiwot and Samir A. Abadura. Multilevel analysis of individualand community level factors associatedwith institutional delivery in Ethiopia BMC Res Notes (2015) 8:376DOI 10.1186/s13104-015-1343-1).**
23. **Mehari AM, SURVEYS tUSAfIDDAH: Levels and Determinants of Use of Institutional Delivery Care Services among Women of Childbearing Age in Ethiopia: Analysis of EDHS 2000 and 2005 Data. In.; 2013.**
24. **Paneru MDP: Factors Influencing Delivery Service Utilization in Rural Areas of Dadeldhura District of Nepal. Medical Science July 2014, 3(7).**
25. **Moore BM, Alex-Hart BA, George IO. Utilization of Health Care Services by Pregnant Mothers during Delivery: A community based study in Nigeria. Journal of Medicine and Medical Science. 2011; 2(5) pp.864-867**.
26. **Shankwaya, S. (2008). "Study to explore barriers to utilization of maternal delivery services Kazungula district in Zambia."**.
27. **Worku, A., A. Yalew, (2013). "Factors affecting utilization of skilled maternal care in Northwest Ethiopia: a multilevel analysis." BMC International Health and Human Rights 13(20).**
28. **Federal Democratic Republic o Ethiopia. Ethiopia Demographic and Health Survey, 2016,** .
29. **Medhanit Getachew Mekonnen, Kassahun Negash Yalew, Jemal Yesouf Umer, Muluken Melese. Determinants of delivery practices among Afar pastoralists of Ethiopia. Pan Afr Med J. 2012;13(Supp 1):17**

30. **JHPIEGO. Maternal and Neonatal Health (MNH) Program. Birth Preparedness and Complication Readiness: A Matrix of Shared Responsibilities. (Original BP/CR Matrix poster published in 2001:23-31. English introductory text revised in 2004.).**
31. **Agha and Carton: Determinants of institutional delivery in rural Jhang, Pakistan. International Journal for Equity in Health 2011 10:31.**

32. **Athol Kent. Home Deliveries and Risk Reviewed. Department of Obstetrics & Gynaecology, University of Cape Town, Rondebosch, South Africa [Rev Obstet Gynecol. 2011;4(1):32-33 doi 10.3909/riog0145a]**.
33. **WHO. WHO recommendations on antenatal care for a positive pregnancy experience. WHO, Geneva, Switzerland, 2016**.
34. **Diana Bowser and Kathleen Hill. Exploring Evidence for Disrespect and Abuse in Facility-Based Childbirth . Report of a Landscape Analysis. USAID-TRAction Project; Harvard School of Public Health University Research Co., LLC, September 20, 2010**.
35. **Windau-Melmer, Tamara. A Guide for Advocating for Respectful Maternity Care. Washington, DC: Futures Group, Health Policy Project.2013**.

Annexes:

Annex I: English version Information sheet and Consent form

English version information sheet and consent form for the questionnaire developed for the assessment determinants of institutional delivery among women who gave birth in the last 2 years, Amibara woreda of Afar region, Ethiopia.

A. Information Sheet

Greeting:

Hello, how are you?

My name is _____. I am data collector on behalf of a Masters Student in AAU, College of Health Sciences School of Public Health, who wants to conduct this survey.

The objective of the study- is to assess the determinant factors for institutional delivery service utilization in this woreda, which will be important to improve the maternal health service delivery of the woreda. Your cooperation and willingness for the interview is very helpful in identifying the problems related to the issue, your name will not be written in the form and I assure you that all information that you give will be kept strictly confidential. Your participation is voluntary and you are not obliged to answer any question you do not wish to answer. If you are not still comfortable with interview, please be free to stop me any time you like, there is no harm if you not answer the questions and no special benefit you get if you answer the question the interview will take 20- 25minutes. I would like to interview you few questions about status of utilization of institutional delivery services.

Would you willing to answer?

1. If yes, Name of interviewer_____ Signature_____
2. If no, skip to the other participant (House hold)

Thank You!

For more information and question if there is here is the contact address of investigator.

Girma Abebe. Tele +251-912354889. E-mail:girmaabeb@gmail.com

B. Consent form

I_____ am informed on study to be conducted by Masters Student in AAU, College of Health Sciences School of Public Health on the status of maternal institutional delivery Service utilization, objective of the study and participation to this study is voluntary no obligation to answer any questioner there is no harm by not answering the questions and no special benefit by answering the question and also the interview will take 20- 25 minutes. I heard all the information mentioned above and willing to participate in the interview.

I agree on all the above.

1. Signature of respondent ---------- date----------

Thank you!

Annex II: English version questionnaire

Addis Ababa University College of Health Sciences School of Public Health a structured household survey questionnaire for interview to assess determinants of institutional delivery among women who gave birth in the last 2 years, Amibara woreda of Afar region, Ethiopia.

Ask if there is any woman in the house hold who delivered within the last 2 years. If **yes** continue with the interview, if **No** thanks her and go to next house hold.

1. Identification	
001.Woreda Name:	005. Questionnaire Code:
002. Kebele:	Date of Interview: _____/_____/_____
003. Village:	Time of start of interview:
004. Household code No.	Time of end of interviewed:

Interviewer Name ----------	Signature----------
Supervisor Name ----------	Signature----------

Instruction: Circle the responses for questions with alternatives and write for open ended questions on the space provided

Part I: Respondents Socio-Economical and Demographic factor			
S.No	**Questions**	**Coding categories**	**Skip to**
101	Age in completed years	……..Years	
102	Current marital status	1. Single 2. Married 3. Divorced 4. Separated 5. Widowed	
103	Educational status	1.Illiterate 2.Read and write 3. Primary school (1-8) 4. Secondary school (9-12). 5. Technical &vocational (Certificate) 6. Diploma 7.Degreeand above	
104	Current occupational status	1. Housewife 2. Livestock herding 3. Farmer/own farm labor 4. Employed (salaried) 5. Daily labor/Wage labor 6. Small business/Petty trade 7. Other (Specify)……	

105	Educational status of your husband	1.Illiterate 2.Read and write 3. Primary school (1-8) 4. Secondary school (9-12). 5. Technical &vocational (Certificate) 6. Diploma 7.Degreeand above	
106	Your husband occupation	1.House Hold 2.Livestock herding 3.Farmer/own farm labor 4.Employed (salaried) 5.Daily labor/Wage labor 6.Small business/Petty trade 7. Other (Specify)……	
107	How is your lifestyle/living pattern? *(Read the response options)*	1.Agro-pastoralist 2.Sedentary pastoralist 3.Semi-sedentary pastoralist 4.Nomadic pastoralist	
Part II: Obstetric and maternal health related factors			
108	Number of pregnancy (gravidity)?	Enter number…….	
109	Number of delivery (parity)?	Enter number……..	
110	Number of live births?	Enter number……..	
111	Number of abortions?	Enter number……	
112	Number of still births (IUFD)?	Enter number…….	
113	Have you attended ANC follow up during the pregnancy of the last birth?	1. Yes 2. No ……..……..…→	Skip to 116
114	If yes to 113, where did you attend?	1.Hospital 2.Health center 3.Health post 4. Home 5. Others/ specify……..	
115	If yes to 113, how many times you attended prenatal care (ANC)?	1. One time 2. Two times 3. Three times 4. Four and above times	
Part III: Institutional delivery service Accessibility of the study participants			

116	Where did you deliver your last baby?	1. Home……..…..……..…→ 2. Health facility 3. Health Post 4. Others/ specify ……..……	to 118
117	Why did you prefer to deliver in the health facility?	1.Save for my life 2.Close to my residence 3.Competent Health workers 4. Fair price 5.Others/ specify……	
118	If you delivered at home who assisted you during delivery?	1. TBA 2. Health Extension Worker 3. Close relatives/friends 4. Others/specify …….	
119	What is the reasons that made you to deliver at home?	1.No delivery service in the health facility 2.Lack of transport to health facility 3.Bad behavior of health workers 4.Sudden onset of labour 5. Husband Refuse 6.Strong belief of traditional birth attendants 7.It is my traditional trend 8.Others/ specify …….	
120	Have you faced any health related problems during your last labor?	1. Yes 2. No …….…..……..…→	Skip to 122
121	If yes120 which of the following problems? (probe)	1. Excess bleeding during labor 2. Prolonged labor(>12hours) 3. Mal presentation 4. Retained placenta 5. Others specify ……..…	
122	How long was the duration of labor?	1. Less than 1 day (≤12 hrs) 2. 1day and 1 night (24 hrs) 3. 2 days and 2nights (48 hrs) 4. Do not exactly remember 5. Others specify……..…	
123	Is there any health facility service nearby your resident?	1.Yes 2.No	
124	If yesto123, which type of health facility is available nearby your residence?	1.Hospital 2.Health Center	

		3.Health post 4.Others/Specify……...	
125	On average how far is the health facility from your home?	1. >5km 2. <5km 3. I do not know	
126	How long it takes to reach at health facility?	Enter average time ……..	
Part IV: General maternal and health Care Service Knowledge, Perception & Belief of respondents			
127	Do you know the danger sign of pregnancy?	1.Yes 2. No …….……..……..…→	129
128	If yes to 127, what kind of health problems can endanger a woman when she is pregnant? More than one could be ticked) (Do not read the responses)	1.Antepartum hemorrhage 2. Swollen hands and face 3. Severe headache 4. Absent fetal movement 5. Convulsions 6. Loss of consciousness 7. Others/specify.....	
129	What is the importance's of delivering at health facility?	1. No importance 2. Safe delivery place 3. Delivery is performed by skilled birth attendants 4. Safe and adequate delivery equipment 5. I don't know 6. Other/ Specify …….…….	
130	Is there any risks to give birth at home?	1. Yes 2. No…….……..……..…→	132
131	If yes to 130, Who is at risk while giving birth at home??	1. Risk for mother 2. Risk for newborn 3. Risk for both (mother& newborn) 4. Others/ Specify…….	
132	Any pregnant woman is susceptible/at risk to face delivery characteristics.	1. Agree 2. Disagreed 3. Unsure	
133	Are there any barriers even if you prefer to deliver at the health facility level?	1. Yes 2. No…….……..……..…→	135

134	If yes to 133, what are the barriers for you to be not delivering at health facility level? [Multiple answers are possible] Probe (*Anything else?)*	1.Unavailability of delivery service in the health facility nearby home 2. Unavailability of skilled attendant in Health facility 3. I cannot pay for transportation 4. I cannot get transportation services 5.Unacceptable of delivery service (such as position of delivery, repeatedly per vaginal assessment, privacy) 6. Husband refuse 7. Preference of home for delivery 8.Other/specify…….	
135	How do you rate the quality of Health facility delivery services?	1.Very Good 2.Fair 3.Poor 4.Other/specify…….	
136	How do you rate the approach of health workers	1.Very Good 2.Fair 3.Poor 4.Other/specify…….	
137	What is the means of transport when a pregnant mother referred from Health post or health center to hospital/ health center?	1. On foot 2. Public transport 3. Ambulance 4. Other specify ……..	
138	Who is a decision maker to seek health care service during pregnancy and/or delivery?	1. My Self 2. Husband 3. Both (myself and husband) 4. TBA 5. Others/ Specify…….	
139	What is the preference of husband to last place of delivery?	1. Home 2. Health facility 3. I don't know	

Annex III: Amharic version Information sheet and Consent form

በአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ የህብረተሰብ ጤና ትምህርትቤት በጤና ድርጅት በነፍሰጡሮች ወሊድ አገልግሎት ላይ የሚያጋጥሙችግሮችን ለማጥናት የተዘጋጀ መጠይቅ፡፡

1. ለጥናቱ ተሳታፊ የሚሰጥ መረጃ

ጤናይስጥልኝ፤ስሜ----------ይባላል፡፡በአዲስ አበባ ዩኒቨርሲቲ የድህረ ምረቃ ጥናት ቡድን አባልነኝ፡፡

የጥናቱ ዓላማ፡ እናቶች በጤና ድርጅት የሚሰጠውን የወሊድ አገልግሎት አጠቃቀምምን እንደሚመስል መዳሰስይሆናል፡፡ በዚህ መሰረት ከጥናቱ የሚገኘው ውጤት በወሊድ አገልግሎት ዙሪያ የእናቶች የአጠቃቀም ሁኔታና የሚታዩ ችግሮች ለወደፊቱ አገልግሎቱን ለማሻሻል የሚጠቅም የመፍትሔ ሀሳቦችን ለማመላከት ይረዳል ፡፡ የእርስዎ በዚህ ጉዳይ ላይ መሳተፍ ለጥናቱ ከፍተኛ አስተዋፅኦ ይኖረዋል፡፡ስምዎት በማንኛውም መልኩ አይገለጽም፡፡ የሚሰጡን መረጃ ሚስጥር የተጠበቀ ይሆናል ፡፡ በጥናቱ መሳተፍ በእርስዎ ሙሉ ፈቃደኝነት ላይ የተመሰረተ ይሆናል ፡፡ በጥናቱ ባለመሳተፍዎ የሚጎዱት ነገር ወይም በመሳተፍዎ ብቻ የሚያገኙት የተለየ ጥቅም የለም ፡፡ ጥያቄውን በከፊልም ሆነ በሙሉ ለመመለስ ካልተመችዎት ማለፍ አሊያም በመሃል ማቋረጥ ይችላሉ ፡፡ ጥያቄዎቹ በአማካይ ከ25-30 ደቂቃዎችን ይወስዳሉ፡፡

መልካም ፈቃድዎ ከሆነ ወደጥያቄና መልስ ውይይት መግባት እንችላለን?

1. **ፍቃደኛ ከሆኑ የቃለ መጠይቁ ጠያቂስም---------- ፊርማ----------**
2. **ፈቃደኛ ካልሆኑ ወደ ሚቀጥለው ተሳታፊ(ቤት) ይሂዱ**

ለተጨማሪ መረጃ፤ ጥያቄ ወይም አስተያየት ካለዎት በሚከተለው አድራሻ ማግኘት ይቻላል፡፡ ግርማአበበ ስ.ቁ.+251912354889 ኢ..ሜይልgirmaabeb@gmail.com

2. የእናቶች የተሳትፎ ስምምነት መግለጫ ቅጽ

እኔ----------በአዲስ አበባ ዩኒቨርሲቲ የህብረተሰብ ጤና ትምህርት ቤት የድህረ ምረቃ ቡድን አባል የእናቶች በጤና ድርጅት የሚሰጠውን የወሊድ አገልግሎት አጠቃቀም ምን እንደሚመስል ለማዳሰስ በሚደረግ ጥናት ላይ የጥናቱ ዓላማና ጠቀሜታ፤ በፈቃደኝነት ላይ የተመሰረተ ተሳትፎ መሆኑ ፤ በጥናቱ መሳተፍም ሆነ ያለመሳተፍ የተለየ ጥቅም የማያስገኝ መሆኑንና መጠይቁ ከ 25-30 ደቂቃ ያህል የሚፈጅ መሆኑ ተገልያልኛል ፡፡ እኔም ከላይ የተሰጠውን ማብራሪያ ሰምቼ ለመሳተፍ ፈቃደኛመሆኔንእገልፃለሁ፡፡

ጠያቂ ስም---------- ፊርማ----------

Annex IV: Amharic version questionnaire

ማሳሰቢያ ለመረጃ ሰብሳቢው ፡ ጥያቄ ከመጀመርዎ በፊት በቤቱ ውስጥ ባለፉት 2 አመት ልጅ የወለደች እናት ስለ መኖሯ ያረጋግጡ፡፡

አጠቃላይ መነሻ የቤተሰብ መረጃ	
001.ወረዳ:	005. የመጠይቅ ቁጥር:
002. ቀበሌ:	መጠይቅ የተካሄደበትቀን_____/ወር_____/ዓ.ም_____
003. መንደር:	የመረጃ ሰብሳቢው ስም.....ፊርማ.....
004. የቤት ቁጥር.	የተቆጣጣሪው ስም.....ፊርማ.....

ማሳሰቢያ: የጥያቄውን አማራጮች ማሳሰቢያ ከተሰጣቸው ውጪ ሌሎችን አያንብቡላቸው፡፡
የተጠያቂውን መልሶች በመልስ መስጫው ቦታ ላይ አክብብባቸው/ፃፏቸው፡፡

ክፍል አንድ--አጠቃላይ የማህበራዊና ኢኮኖሚያዊ መረጃ በተመለከተ			
ተ.ቁ	ጥያቄ	ዝርዝር መልስ	እለፍ
101	የመጨረሻዉን ልጅዎን ሲዎልዱ እድሜዎ ስንት ነበር ?	.....ዓመት	
102	የጋብቻ ሁኔታ ቢገልጹልን	1. ያላገባ 2. ያገባ 3. የተፋቱ 4. የተለያዩ 5. የሞተባት	
103	የትምህርት ደረጃዎ እስከ ስንት ነው?	1.ያልተማረ 2.ማንበብና መፃፍየምትችል 3. አንደኛደረጃ (1-8) 4. ሁለተኛደረጃ(9-10) 5. ሰርተፊኬት 6. ዲፕሎማ 7. ዲግሪ	
104	የመተዳደሪያሥራዎ ምንድነው?	1. የቤትእመቤት 2. አርብቶአደር/እንሰሳትንመባርባት 3. አርሶአረድ/ግልእርሻ 4. ተቀጣሪ(ደመወዝተኛ) 5. የቀንሰራተኛ 6. ጥቃቅንየንግድስራ 7. ሌላካለይገለፅ.....	
105	የባለቤትዎ የትምህርት ደረጃ እስከ ስንት ነው?	1. ያልተማረ 2. ማንበብና መፃፍየምትችል 3. አንደኛደረጃ (1-8) 4. ሁለተኛደረጃ (9-10) 5. ሰርተፊኬት 6. ዲፕሎማ 7. ዲግሪ	

106	የባለቤትዎ መተዳደያ ስራ ምንድነው?	1. የቤትባ ለቤት 2. አርብቶአደር /እንሰሳትንመባርባት 3. አርሶአረድ/ግልእርሻ 4. ተቀጣሪ(ደመወዝተኛ) 5. የቀንሰራተኛ 6. ጥቃቅን የንግድስራ 7. ሌላካለይገለፅ……..	
107	የአኗኗርዎ ሁኔታ እንዴ ትነው? *(አማራጭመልሶችንአንብቡላቸው)*	1. ከፊል አርብቶአደር 2.አርብቶአደር 3.ከፊልአርብቶአደርከፊል አርሶአደር 4. ከቦታቦታተንቀሳቃሽእንስሳትማርባት	
ክፍልሁለት-- የእናቶችስነ- ተዋልዶናፅንስሁኔታ			
108	ስንት ጊዜ አርግዘሻል?	በቁጥር…….	
109	ስንተኛሽ መውለድሽ/ ምነው?	በቁጥር…….	
110	በህይወት የተወለደ ልጅስንት አሎት?	በቁጥር…….	
111	አስወርዶትያውቃል ወይ ምስንት ጊዜ?	በቁጥር…….	
112	በማህፀን ውስጥ/ሞቶ የተወለደ ልጅነበሮት?	በቁጥር…….	
113	ባለፈው የእርግዝናዎ ጊዜ የፅንስ ክብካቤ ምርመራ አገልግሎት አድርገውነበር?	1. አዎ 2. የለም ……..……..→	116
114	ለጥያቄ ቁ.113 መልስዎ አዎ ከሆነ የተከታተለበት ቦታ የት ነበር?	1. ሆስፒታል 2. ጤና ጣቢያ 3. ጤና ኬላ 4. ቤት 5. ሌላ ካለ ይገለፅ……..	
115	ለጥያቄ ቁ.113 መልስዎ አዎ ከሆነ ለስንት ጊዜ ክተት ልአደረጉ?	1. አንድ 2. ሁለት 3. ሦስት 4 .አራትና ከዚያበላይ	
ክፍል ሦስት-- የጤና ተቋም እንክብካቤ አገልግሎትተደራሽነት			
116	የመጨረሻ ልጅዎን የት ነው የወለዱት?	1. ቤት ውስጥ……..……..→ 2. በጤና ተቋም 3. ጤና ኬላ 4. ሌላካለይገለፅ……..	118
117	በጤና ተቋም መውለድን ለምን መረጥሽ?	1.ለህይወቴ ደህንነትአስተማማኝ ስለሆነ 2. ለመኖሪያየ ቅርብ ስሆነ 3.ጥሩችሎታያላቸው ባለሙያ በመኖራቸው 4.ዋጋው ተመጣጣኝ ስለሆነ 5.ሌላ ካለይገለፅ……..	
118	የመጨረሻልጆትንቤትውስጥሲወልዱማንአዋለዶ ት	1. ልምድአዋላጅ 2. የጤናኤክስቴንሽንባለሙያ 3. የቅርብዘመዶች 4. ሌላካለይገለፅ……..	

119	የመጨረሻ ልጅዎን ለምንድነው ቤት መውለድ የመረጡት?	1.በጤናተቋምየወሊድአገልግሎትስለሌለ 2.የትራንስፖርት ችግር 3.የጤናባለሙያዎችስነምግባርጥሩባለመሆኑ 4.ምጡ ቶሎ ስላፋፋመኝ 5.ባለቤቴ ስለተቃወመ 6. በልምድ አዋጅ እምነትስላለኝ 7. ባህላዊ ልማዴ ስለሆነ 8. ሌላ ካለ ይገለፅ.....	
120	በምጥ ጊዜ የገጠምዎት የጤና እክልአለ?	3. አለ 4. የለም.....→	122
121	ለጥያቄ ቁ.120 መልስዎ ከሆነ ከተዘረዘሩት የቱ ነው የገጠምዎት? *(ማጢጣጣት)*	1. በምጥወቅትብዙከማህፀንደምመፍሰስ 2. የምጥመራዘም (ከ12 ሰዓትበላይ) 3. ያልተለመደየፅንስአቀማማ/አመጣጥ 4. የእንግዴልጅማህፀንውስጥመቅረት 5. ሌላካለይገለፅ.....	
122	ምጥ ለምን ያህል ጊዜ ቆየቦት?	1. ግማሽቀን12ሰዓት 2.አንድ ቀንና አንድ ሌሊት 3.ሁለት ቀንና ሁለት ሌሊት 4. በእርግጠኝነት አላስታውስም 5.ሌላ ካለ ይገለፅ.....	
123	በመኖሪያ አከባቢዎ /አቅራቢያ የጤና ተቋም አለ?	1. አለ 2. የለም	
124	ለጥያቄ ቁ.123 መልሶ አዎከ ሆነ የጤና ተቋሙ የትኛው አይነትነው?	1. ሆስፒታል 2. ጤናጣቢያ 3. ጤናኬላ 4. ሌላካለይገለፅ.....	
125	የጤና ተቋሙ ከቤትዎ በግምት ምን ያህል ይርቃል?	1. ከ5ኪ.ሜ በላይ 2. ከ5ኪ.ሜ በታች 3. አላውቅም	
126	ወደ ጤና ተቋሙ ለመድረስ በግምት ምንያህል ደቂቃ/ሰዓት ይፈጅቦታል?	በቁጥር.....	
ክፍልአራት-- አጠቃላይ ስለጤና እናቶች ያላቸው እውቀት እምነትእናግንዛቤ			
127	የእርግዝና ወቅት አደገኛ ምልክቶችን ያውቃሉን?	1. አዎ 2.አላውቅም.....→	129
128	ለጥያቄ ቁ.127 መልስዎ አዎ ከሆነ አደገኛ ምልክቶችን ዘርዝሪ ከአንድ በላይ ምልክትአድርጊ(*እንዳታነቢላቸው*)	1.በእርግዝናወቅትከማህፀን ደምመፍሰስ 2. እጅና ፊት ማበጥ 3. ከፍተኛ እራስ ምታት 4. የፅንሱ እንቅስቃሴ መቆም 5. ማንዘፍዘፍ 6. እራስን መሳት 7. ሌላ ካለይገለፅ.....	
129	በጤና ተቋም መውለድ ጥቅሞቹ ምንድ ናቸው?	1. ጥቅም የለውም 2.ምቹ የወሊድቦታ 3.የሰለጠኑ ባለሙያዎች ለሚያዋልዱ 4.ምቹናበቂ የማዋለጃ ቁሳቁስ መኖር	

		5.አላውቅም 6.ሌላ ካለይገለፅ……..	
130	በቤት ውስጥ መውለድ ጉዳት አለውን?	1. አለ 2. የለም……..……..→	132
131	ለጥያቄ ቁ. 130 መልስዎ አዎ ከሆነ በቤት ውስጥ መውለድ ጉዳቱ ለማን ነው?	1. ለእናትየው ጉዳት አለው 2. ለህፃኑ/ዋ ጉዳትአለው 3. ለሁለቱም 4. ሌላ ካለ ይገለፅ……..	
132	ማንኛዋም ነፍሰጡር እናት በወሊድ ወቅት ችግር ሊገጥማትይችላል	1. እስማማለሁ 2. አልስማማም 3. እርግጠኛ አይደለሁም	
133	በጤናተ ቋም መውለድ እየፈለጉ እንዳትወልዱ የሚከለክል ምክንያት አለ?	1. አለ 2. የለም……..……..→	135
134	ለጥያቄ ቁጥር133 መልሱ አዎ ከሆነ በጤናተ ቋም እንዳይወልዱ ያረጎ ምክንቶች ምንድ ናቸው? *(ብዙአማራጮችአለ.ይምረጡ)*	1. ጤናተቋምየወሊድግልጋሎትስለማይሰጥ 2.ጥሩልምድያላቸውአዋላጆችባለመኖራቸው 3. ለትራንስፖርትመክፈልስለማልችል 4. ትራንስፖርትስለሌለ 5. የማይመችአወላለድሁኔታዎችስላለ (አስተኛኘት፣ቶሎቶሎ ማህፀን ውስጥ እጅ መክተት ወዘተ) 6. ባለቤቴ ስለማይፈልግ 7. ቤቴ መውለድ ስለምፈልግ 8. ሌላ ካለ ይገለፅ……..	
135	በጤና ተቋም የሚሰጠው የማዋለድ አገልግሎት አሰጣጥ ጥራት እንዴ ትነው?	1. በጣም ጥሩ 2. ጥሩ 3. መጥፎ 5. ሌላ ካለ ይገለፅ……..	
136	የጤና ባለሙያ አቀራረብ እንዴ ትነው?	1. በጣም ጥሩ 2. ጥሩ 3. መጥፎ 4. ሌላ ካለ ይገለፅ……..	
137	ነፍሰጡር እናት ከጤና ኬላ/ጤናጣቢያ ወደ ጤናጣቢያ /ሆስፒታል ርፈር ስትደረግ በምን አይነት ትራንስፖርት ነው የምትጓጓዘው?	1. በእግር 2. ህዝብት ራንስፖርት 3. አምቡላንስ 4. ሌላ ካለ ይገለፅ……..	
138	በእርግዝና ጊዜና በወሊድ ጊዜ በጤና ተቋም ለመገልገል ውሳኔ ሰጪው (ወሳኙ) ማንነው?	1.እራሴ 2.ባለቤቴ 3.እኔና እናባለቤቴ (ሁለታችን) 4.የልምድ አዋላጇ 5.ሌላ ካለይገለፅ……..	
139	ባለቤትሽ በመጨረሻ የወሊድ ጊዜ የትኛውን የወሊድ ቦታ መረጡ?	1. ቤት 2. ጤናተቋም 3. አላውቅም	

Annex V: Assurance of principal investigator

I undersigned here agrees to accept responsibility for scientific ethical and technical conduct of the research project and for provision of required progress reports as per terms and the condition of the research I will communicate to my advisor and other stakeholders involved in this research publications office in effect at the time of grant is forwarded as the result of this application

Name of the student: Girma Abebe

Signature _____date_____

Approval of primary advisor

Name of the primary advisor: Assefa Seme (Associate Professor, MD, MPH)

Signature _____date_____