ADDIS ABABA UNIVERSITY

SCHOOL OF PUBLIC HEALTH

ASSESSMENT OF BIRTH PREPAREDNESS AND COMPLICATION READINESS IN ROBE WOREDA, OROMIA REGION, CENTRAL ETHIOPIA

BY

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A THESIS SUBMITTED TO THE SCHOOL OF PUBLIC HEALTH ADDIS ABABA UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS IN PUBLIC HEALTH

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ADDIS ABABA, ETHIOPIA

JUNE, 2012

Addis Ababa University School of Public Health

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Acknowledgments

First and foremost I am deeply grateful to acknowledge my advisor Dr. Mesfin Addisse, for his relevant, timely and constructive comments and guidance during the whole research process.

I would like to appreciate and give very special thanks to UNFPA for providing me financial support to conduct this research.

I am also very happy to thank Ato Jamal Siraji, head of Robe Woreda Health Bureau and their staff for their unreserved help to facilitate administrative supports during the research work.

My thanks also go to Addis Ababa University, School of Public Health for all the efforts made to provided me with the necessary knowledge and skill to conduct the study.

My very great gratitude goes to my wife Fayo Rube, my children Izzadin and Keneni for their unlimited encouragement, moral, material and financial support throughout the course and the research work.

I am also very glad to forward my special thanks to my brother Okasha Kaso for his encouragement and for the support he offered me during my research work.

Lastly but not the least, I would like to extend my thanks to data collectors, supervisors and all research participants who took part in the study.

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Acronyms

AAU-Addis Ababa University

ANC- Antenatal Care

AOR- Adjusted Odds Ratio

BP/CR- Birth Preparedness and Complication Readiness

CI- Confidence Interval

COR- Crude Odds Ratio

DHS- Demographic and Health Survey

FGD- Focus Group Discussion

HEWs- Health Extension Workers

HWs- Health Workers

IRB- Institutional Review Board

MDGs- Millennium Development Goals

MMR- Maternal Mortality Ratio

MPH- Master of Public Health

NGO- Non-governmental Organization

PI- Principal Investigator

PID-Pelvic Inflammatory Diseases

PNC- Postnatal Care

SPH- School of Public Health

SPSS- Statistical Package for Social Sciences

TB- Tuberculosis

TBA- Traditional Birth Attendant

TTBA- Trained Traditional Birth Attendant

UN- United Nation

UNFPA- United Nations Population Fund

UTBA- Untrained Traditional Birth Attendant

WHO- World Health Organization

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Abstract

Background: Globally more than half a million women die annually as a result of complications of pregnancy and childbirth. Ninety-nine percent of these deaths occur in most developing countries like Ethiopia. Obstetric related complications cannot be reliably predicted and it is necessary to use birth preparedness and complication readiness strategies to overcome those problems when they arise.

Objective: To assess the knowledge and practices towards birth preparedness and complication readiness and factors associated among women of reproductive age (15-49) in Robe Woreda, Oromia Region, Ethiopia.

Method: A cross-sectional community-based study supplemented by qualitative design was conducted in January, 2012. A total of 575 women from 5 kebeles were selected using proportionally allocated to population size and interviewed using structured and semi-structured, pre-tested questionnaires. Univariate and bivariate analysis was performed. Multivariate analysis was also done to control for possible confounding variables.

Results: Data were obtained from 575 mothers, yielding a response rate of 98.97%. Taking into account place of delivery identification, means of transportation, skilled attendant identification and saving money, about 16.5% of the respondents were prepared for birth and its complications. In multivariate analysis, preparation for birth and its complication was higher among educated mothers (AOR= 6.23, 95% CI= 1.5, 25.87), monthly income >716 ETBr (AOR= 1.94, 95% CI= 1.01, 3.87), ANC visit (AOR= 5.68, 95% CI= 1.27, 25.4), knowledge of obstetric complications (AOR= 2.94, 95% CI= 1.61, 5.37) and those who had given birth at health facility before their last delivery (AOR= 3.9, 95% CI= 2.04, 7.46).

Conclusion: The study identified poor knowledge and practices of preparation for birth and its complication. Community education about preparation for birth and its complication and empowerment of women through expansion of educational opportunities are important steps in improving birth preparedness. In all health facilities during antenatal care emphasis should given to preparation for birth and its complication and provide information and education to all pregnant women.

1. Introduction

1.1. Background

Maternal mortality is a substantial problem in developing countries [1]. Decreasing maternal mortality has received recognition at the global level as evidenced by the inclusion of reducing maternal mortality in the Millennium Development Goals [2].

Birth preparedness is a comprehensive strategy to improve the use of skill providers at birth, the key intervention to decrease maternal mortality. Birth preparedness and complication readiness (BP/CR) is the process of planning for normal birth and anticipating the actions needed in case of an emergency. It encourages women, households, and communities to make arrangements such as identifying or establishing available transport, setting aside money to pay for service fees and transport, and identifying a blood donor in order to facilitate swift decision-making and reduce delays in reaching care once a problem arises. Responsibilities for BP/CR must be shared among all safe motherhood stakeholders, because a coordinated effort is needed to reduce the delays that contribute to maternal and newborn deaths [1].

Too often, however, their access to care is impeded by delays—delays in deciding to seek care, delays in reaching care, and delays in receiving care. These delays have many causes, including logistical and financial concerns, unsupportive policies, and gaps in-services, as well as inadequate community and family awareness and knowledge about obstetric complications issues [2].

Maternal and neonatal mortality and morbidity rates in Ethiopia are among the highest in the world and stem from a range of socio-economic, political and demographic factors. Many of these deaths are preventable and include complications such as hemorrhage, infection, obstructed labour, abortion and eclampsia in mothers and asphyxia, infection and prematurity or low birth weight among the new born [3].

1.2. Statement of the problem

Pregnancy and childbirth and their complications are the leading causes of death, disease and disability among women of reproductive age in developing countries more than any other single health problem [1].

Globally, more than half a million women die annually as a result of complications of pregnancy and childbirth. Ninety-nine percent of these deaths occur in most developing countries like Ethiopia [2].Pregnancy related complications cannot be reliably predicted and it is necessary to design strategies to overcome those problems when they arise [1].

Worldwide more than 70% of all maternal deaths are due to five major complications: hemorrhage, infection, unsafe abortion, hypertensive disorders of pregnancy, and obstructed labor. An estimated 40% of pregnant women (50 million per year) experience pregnancy-related health problems during or after pregnancy, and childbirth, with 15% suffering serious or long term complications. As a consequence, 300 million women suffer from pregnancy-related health problems and disabilities, including anemia, uterine prolapse, fistula, PID, and infertility [4].

In Ethiopia direct obstetric complication accounts for 85% of the deaths. It includes- abortion 32%, obstructed labor 22%, sepsis 12%, hemorrhage 10% and hypertension 9% primarily, due to frequency of adolescent pregnancy combined with neglected prolonged labor [2, 3, 5].

1.3. Significant of the study

Despite the fact that BP/CR is essential for prevention of maternal deaths, little is known about the status of birth preparedness and complication readiness in rural Ethiopia in general and in Oromia Region in particular.

Therefore, this paper aimed to assess knowledge and practices with respect to birth preparedness and complication readiness and factors associated in rural community among women of reproductive age in Robe Woreda, Arsi Zone, Oromia region, Ethiopia.

The findings of this study will be used by planners, administrators and stakeholders to amend BP/CR strategy and take corrective measure to improve maternal health services programme.

2. Literature Review

Birth Preparedness and Complication Readiness (BP/CR) is the process of planning for normal birth and anticipating the actions needed in case of an emergency. It encourages women, households, and communities to make arrangements such as identifying or establishing available transport, setting aside money to pay for service fees and transport, and identifying a blood donor in order to facilitate swift decision-making and reduce delays in reaching care once a problem arises [1].

It is almost more than two decades now since the initiation of the safe motherhood initiative, but maternal deaths is still high in most of the developing countries [3, 4, 6]. According to UNFPA 2004, every year, about 210 million women become pregnant, an estimated 30 million or about 15 % of these women develop complication, which are fatal in 511,000 or 1.7 % of cases of all health statistics. More than 99% of maternal deaths occurring in developing countries, where a woman runs an average risk of dying from a pregnancy related disorder about 250 fold greater than women in most developed countries[4, 7]

Maternal death affects not only women, but also their families and communities. The risk of an infant dying increases significantly with the mother's death. The death of a woman of reproductive age also brings significant economic losses and setbacks to community development. Hence, most recently, at the millennium summit in 2000, the UN member states issued the MDG that call for a three-fourth reduction in maternal death by the year 2015[3, 7]. What makes maternal death such a challenge is the fact that the complications related with pregnancy and childbirth are extremely difficult to predict. As JHPIEGO meeting in Ghana 2004, nearly two third of maternal deaths worldwide are due to five direct causes: hemorrhage (24%), obstructed labor (8%), eclampsia (pregnancy induced hypertension) (12%), Sepsis (15%) and unsafe abortion (13%). The remaining 20% and 8% are due to indirect cause and an existing medical condition that is worsened by pregnancy or delivery [8].

In Ethiopia direct obstetric complication accounts for 85% of the deaths. It includes- abortion 32%, obstructed labor 22%, sepsis 12%, hemorrhage 10% and hypertension 9% primarily, due to frequency of adolescent pregnancy combined with neglected prolonged labor [2, 3, 5].

Ethiopian Demographic and Health Survey 2011report showed that a national ANC, delivery attendance and postpartum care offered by health professional is 34%, 10% and 7%, respectively with great discrepancies between the regions. Slightly about two in ten (19.1%) women make four or more ANC visits during their entire pregnancy, with marked variation between women residing in urban area (45.5%) and those in rural areas (14.4%). Only 11.2% of women make their first ANC visits before the fourth months of pregnancy, with marked variation between women residing in urban areas (31%) and those in rural areas (7.7%). The ANC coverage, delivery attendance and postpartum care offered by health professional for Oromia region is 31.3%, 8.1% and 5 % respectively[5].

A community-based survey study 2010 in Tanzania showed that women who attend ANC are more likely to seek skilled delivery care. Nevertheless, at least 20% of all women who attend ANC four times or more in sub-Saharan African and Asian countries do not seek skilled delivery attendance[9].

Evidence suggests that ANC is more effective when received earlier in the pregnancy. According to community-based study 2007 in Adgirat, 21.2% of the respondents had first ANC visit by a skilled provider in the first three months of pregnancy. A study showed that women who receive four ANC visits with effective interventions are as likely to have good outcomes as women who receive more visits. In the Adgirat study, most (73.2%) of the respondents had four or more visits [10].

About 78% of the respondents reported that they identified place of delivery ahead of childbirth. Place of delivery identification is very important especially in this setting where the main means to get a skilled provider is to deliver at health institutions. Lack of money and transportation is a barrier to seeking care as well as identifying and reaching medical facilities [10]. The money saved by woman or her family can pay for health services and supplies, vital for transport, or other costs such as loss of work. Likewise, if a woman can afford to pay for these costs, she is more likely to seek care[2].

A baseline survey done 2007 in South and North Wollo Zone showed that 5.5 % deliveries are managed by health professionals while health extension workers are mentioned to be involved at delivery only by nine of the respondents[11]. A community-based survey study done 2004 in

north Gondor 13.5% of the respondent had delivered in health institution. The reasons for not utilizing the service are 44.7 % of the respondents reported that labour was short and smooth, needed relatives attention during labor 14.3%, facility too far and the presence of TBA are 15.2% and 14.9% respectively. About 7% gave a reason of lack of money[12].

According to EDHS 2011report, the post natal service coverage in Ethiopia is extremely low, also nine in ten mothers received no post natal care, and only 7 % obtained postnatal care within the critical period of first two days after delivery. A highest percentage of mothers who delivered for the first time utilized the service than mothers with two or more children[5].

Thirty two percent of mothers in urban areas received postnatal care within two days of birth compared to 2.7% in rural areas. Similarly mother's education seems to influence the utilization of postnatal care. Antenatal care is most common among women with higher than secondary education (91%) and those living in Addis Ababa (94%).There are significant differences in utilization of postnatal care by wealth quintile[5].

A number of socio demographic and economic factors are found to have a significant influence on use of skilled care at delivery. They include women's age, education level, marital status and income. A community-based survey study 2010 in Tanzania revealed that young women are just starting child bearing and are told to be in high risk group, they tend to fear home deliveries. It is also possible that the new generation with the higher proportion of women who have formal education have different perspectives in delivery care when comparing to older generation[9].

Other study done in Ethiopia showed that the use of delivery care services is significantly shaped by place of residence, women's education, number of children under five, and year of birth. Accordingly, women from Addis Ababa are about five times more likely to receive delivery care from a health professional than women from other urban areas[13]. As study in India showed mother's education had large positive effects on the institutional delivery [14, 15].

Studies done in Ethiopia also indicate similar conclusions. According to the community-based study in Gulele district, Addis Ababa, the risk of choosing to deliver at home was found high for those who are illiterate[16]. Similarly, the study done in Arsi zone central Ethiopia indicate, women who had no formal schooling are found to attend antenatal care less likely[17].

Some studies have presented evidence that the effect of knowledge of women about delivery complications have influence on skill attendant utilization. With regard to access to information women and community members often do not know how to recognize, prevent or treat pregnancy complications, or when and where to seek obstetric help. The study in Ghana shows that, 64% of women who died of pregnancy complications sought help from a traditional birth healer before going to a health facility and had no information with regard to pregnancy related complications[18]. Study conducted in India in four states, shows that, mothers who are regularly exposed to electronic mass media are several times more likely to give birth in a medical institution than mothers not exposed[19].

Study conducted to assess birth preparedness and complication readiness among women in Adigrat town, taking into account place of delivery identification, means of transportation and saving money, about 22% of the respondents were prepared for birth and its complication[10]. Other study conducted to assess birth preparedness and complication readiness among women in Northern Nigeria, taking into account preparing essential items for clean delivery, place of delivery identification and saving money, about 27.5% of the respondents were prepared for birth and its complication[20].

Some studies indicate that having past history of obstetric complications was found to have statistical significance with birth preparedness and complication readiness [10, 20-22]. The reason for this might be, mothers with previous obstetric complications may fear something the same may happen and need advice and support from health personnel.

Some studies also indicate that, women who had ever given birth in the health facility before are significantly associated to prepare for birth and its complication [20-22]. This strong significant association could partly be explained due to increased in mothers' confidence and trust on providers from previous use of the service.

In a study done in north shoa Ethiopia, professionally assisted delivery was very low. A medically trained person attended only 3.3% of the women during the study period. For this low coverage Cultural norm, perceptions and practices of mothers may negatively impact on skill attendant care at delivery[23]. Studies indicated that the perception of health and risk during pregnancy, birth and post-partum periods strongly influence health seeking behavior. On the

other side, formal health services also can conflict with ideas about what is normal or acceptable including preference for privacy, modesty of female attendants. The Sugathan Indians in Ecuador did not use the affordable, accessible maternal care because they feel that hospitals violate women's privacy during childbirth and because many health professionals are men[19].

This is also true in Ethiopia where only 10% of women deliver with a skilled attendant and 12% postnatal care with 48 hours of delivery[5]. Thus, obstetric services are often unused even when accessible because of low acceptability (most health workers are men).According to the study conducted at Gulele District among those who wished to deliver at home (42.9%) their reasons are, relatives would be nearby, (23.8%) unaffordable cost for delivery at health institution, more trust on TBA or relatives than health professional[16].

The availability of skilled attendant, accessibility of health institutions and the presence of referral system are some factors that enable mothers to utilize skilled attendant care. Studies indicate that one of the reasons women give for choosing not to use available obstetric care is poor access to health institutions. Since most women live more than five kilometers from the nearest health institutions, vehicles shortages and poor road conditions affect skilled attendant care. In Tanzania 84% of women who gave birth at home intend to deliver at a health facility, but couldn't because of distance and lack of transportation[24]. Study conducted at Gulelle district in Addis Ababa also shows that the reasons given for preferring to deliver in health institution is high quality of service 50.1%, following by nearness of health institution 36.8%, and the approach of good health workers 9 %[16].

Delays made by health professionals in referring women from community health facilities to hospitals, is also an important barrier to life saving maternal care. In Tanzania a significant proportion of maternal deaths are caused by avoidable factors including failures by health workers to identify women suffering from serious complications and to refer them to a higher level of the health care system[24].

A Conceptual framework on factors that affect women's birth preparedness and complication readiness during pregnancy and childbirth was annexed (see figure 2 on annex-I).

3. Objective

3.1. General Objective

- To assess birth preparedness and complication readiness among women of reproductive age in Robe Woreda, Arsi Zone, Oromia Region, Ethiopia.

3.2. Specific Objectives

1. To assess knowledge about birth preparedness and complication readiness among women who gave birth in the last 12 months preceding the survey.
2. To identify practices related to birth preparedness and complication readiness among women who gave birth in the last 12 months preceding the survey.
3. To assess factors associated with the practices of birth preparedness and complication readiness among women who gave birth in the last 12 months preceding the survey.

4. Methodology

4.1. Study area and period

The study was conducted in January, 2012 in Robe Woreda, Oromia region which is 223km east from Addis Ababa, the capital city of Ethiopia. The Woreda is divided in to 4 admistrative towns (Robe; capital town of Woreda, Habe, Sadika and Endato) and 28 rural kebeles. The total population in the Woreda is estimated to be 184,367 with an area of 127.5 square kilometers. It has one district government hospital, four health centers, 28 health posts and 11 Private clinics.

4.2. Study Design

A cross sectional survey supplemented by qualitative design

4.3. Source population

All women in the reproductive age group (15-49) in Robe Woreda

4.4. Study population

Women who had given birth in the last 12 months preceding the survey irrespective of birth outcome

For an in depth interview and FGDs: TBAs and women in the age group (15-49) who were locally respected

4.5. Sample size determination

Sample size was determined using the formula for single population proportion based on the following assumptions. $n = \frac{(Z\alpha/2)^2 \; p\,(1-p)}{d^2}$

Where: n= is the size of the sample

$Z\alpha/_2$= is the standard normal value corresponding to the desired level of confidence

d=error of precision

P=is the estimated proportion of an attribute that is present in the population.

Assumptions

1. Prevalence of BP/CR is 22% from Adigrat study (10).
2. Margin of error d= 5% is accepted
3. A confidence interval of 95% is assumed (Zα/2=1.96).

$$n= \frac{(1.96)^2\ 0.22(1-0.22)}{(0.05)^2} = 264$$

The calculated sample was 264 plus a non-response rate of 10%=290.4, plus considering a design effect of 2 (290.4x2), a total of **581**women was required.

For the qualitative methods, a total of five TBAs for in depth interview and four FGDs each group contains 6 women were enrolled and interviewed using open ended questions related to the objective of the study.

4.6. Sampling procedure

To identify the study units, for the quantitative data, the study employed cluster sampling technique. Based on the catchment areas of each 4 health centers in the Woreda (since these health centers are assumed to be distributed evenly in the Woreda), all rural Kebeles in the Woreda were grouped in to four groups (clusters) and then, one cluster was selected by simple random sampling techniques.

A proportionally allocated to the population size technique was used to determine the number of respondents that were selected and interviewed in each kebele in selected cluster. After selecting a random starting point, individuals were selected in the kebele till the desired sample size of individuals was reached in each kebele. For households' which had more than one eligible woman, interview was done by selecting a women using lottery method.

Also in the event of a household with no eligible woman the immediate next household with eligible woman was interviewed.

For the qualitative design, purposive sampling technique was employed for an in depth interview of one TBA from each kebele. For FGDs women in the age group (15-49) who were locally respected was selected purposively from two kebeles. Two FGDs (one group 15-30 years and the

other group >30 years) was taken from each kebele after those two kebeles were selected by simple random sampling techniques among kebeles in the selected cluster.

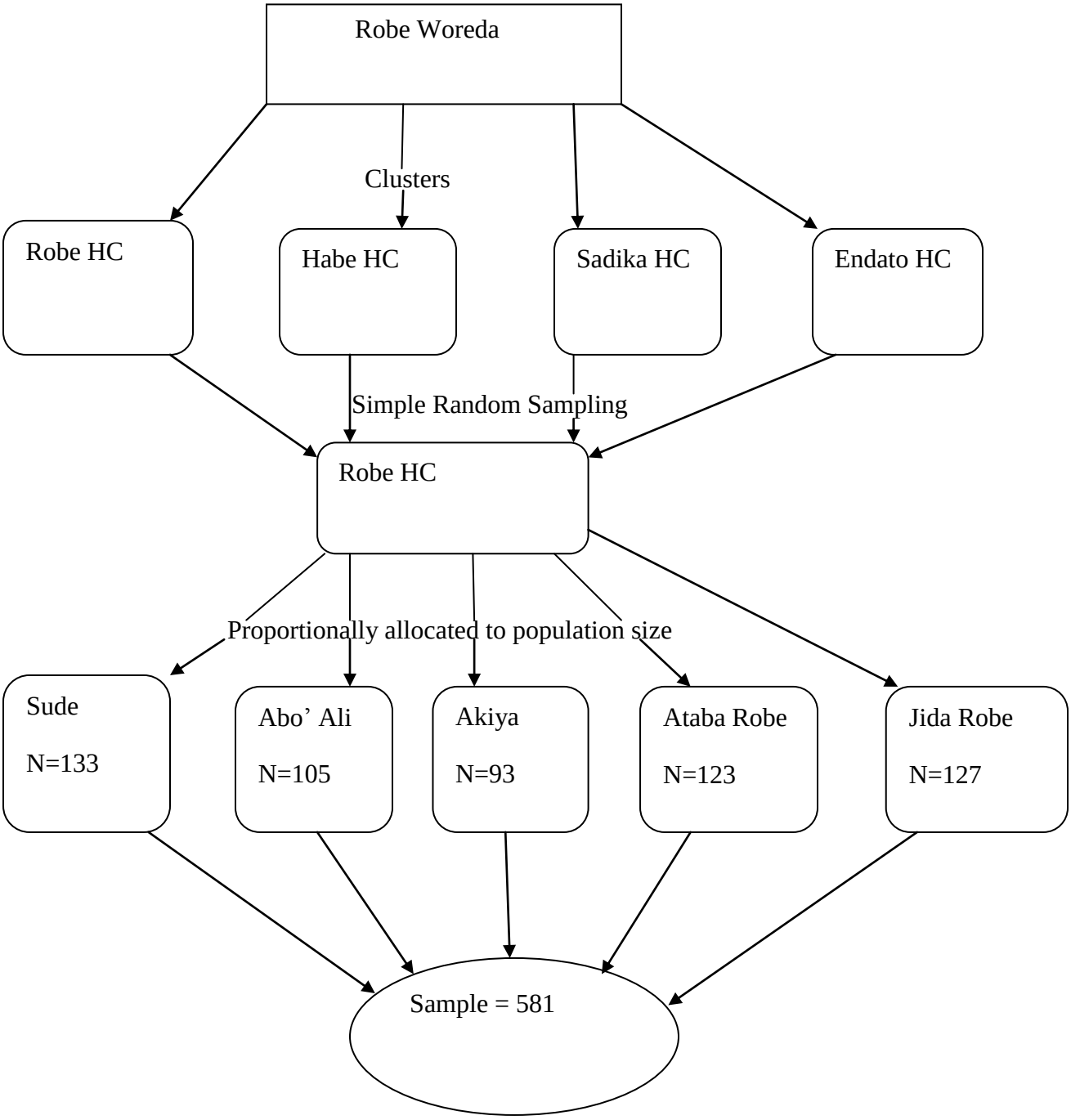

Fig.1: Schematic Presentation of Sampling Procedures.

4.7. Study Variables

Dependent Variables

- ✓ Birth preparedness
    - Identify place of delivery
    - Saving money for child birth
    - Identify the mode of transport to place of child birth
    - Identify skilled provider at birth

Independent Variables

- Socio demographic variables- age, ethnicity, religion, marital status, occupation, income, educational status
- Obstetric history- gravidity, parity, ANC, history of obstetric complication
- Knowledge and practice - pregnancy and labour danger sign, knowledge about pregnancy risk, practice during pregnancy and labour

4.8. Operational Definition

Knowledge of obstetric complication(s) - any symptom of obstetric complication(s) reported by women which may occur in women during pregnancy, delivery or within 6 weeks after delivery (vaginal bleeding, swollen hands/face, blurred vision, prolonged labour (> 12huors), convulsion, retained placenta, foul-smelling vaginal discharge and high fever).

Knowledgeable on key danger signs of pregnancy- a women is considered knowledgeable if she can mention at least two of the three key danger signs for pregnancy (vaginal bleeding, swollen hands/face and blurred vision) spontaneously.

Knowledgeable on key danger signs of labour/childbirth- a woman is considered knowledgeable if she can mention at least three of the key four danger signs for labour/childbirth (severe vaginal bleeding, prolonged labour (> 12huors), convulsion and retained placenta) spontaneously.

Knowledgeable on key danger signs of postpartum- a women is considered knowledgeable if she can mention at least two of the three key danger signs for postpartum (severe vaginal bleeding, foul-smelling vaginal discharge and high fever) spontaneously.

Birth Prepared-a woman was considered as birth prepared if she identified place of delivery, saved money, identified skilled provider and identified a mode of transport ahead of childbirth.

Skilled Provider- Persons with midwifery skills (physicians, health officers, nurses/midwives) who can manage normal deliveries and diagnose, manage or refer obstetric complications.

4.9. Data collection tools and procedures

Structured questionnaires mainly adapted from monitoring birth preparedness and complication readiness, tools and indicators for maternal and newborn health (1) in English. Principal investigator translated the English version to Afan Oromo. Another individual who had very good knowledge of both English and Afan Oromo language then translated the Afan Oromo version back to English to check for its original meaning. The questionnaires contained socio-demographic variables, obstetric history, knowledge and practice of the mothers during pregnancy, delivery and post-partum period.

Semi-structured interview guide questions- Open ended interview questions was developed for an in depth interviews and FGDs to elicit information on birth preparedness and complication readiness and factors influencing it. The contents of the interview included the most common maternal health problems in the area, traditional practices done in the area by the mothers or the community especially during pregnancy, childbirth and immediately after delivery assuming it will benefit the mother's health, whether they satisfied or dissatisfied with the maternal health care services given by HEWs/other health workers in the health posts/other health facilities and strengths and limitations of health facilities in the provision of maternal health care.

FGD moderators (PI and one note taker) and in depth interview interviewer (PI) explained the purpose of the study and obtained voluntary informed consent prior to conducting the discussions. Note taking and tape recorder were used for in depth interviews and FGDs.

Five diploma nurses fluent speaker of the local language and familiar with the place of collection were selected. For each kebele one data collectors who fulfill the criteria of selection was recruited and trained for two days to collect the data. The training was given by the principal investigator prior to the data collection. The session included the internalization of the objective of the survey, technique and how to approach the respondents.

Two supervisors with BSc nurse background were recruited. During the actual data collection, one supervisor had supervised three and the second supervisor had supervised two data

collectors. The supervisors checked the activities of each of the data collectors by moving with them in each kebeles and sometimes revisiting households. Every day, the supervisors checked all filled questionnaires for completion, clarity, and proper identification of the respondents and then the principal investigator also checked for the completion each day. Incomplete and unclear questionnaires were returned back to the interviewers to get it complete for the next day.

The questionnaires were pre-tested on kebeles that were similar with the study population in the areas. One kebele was selected randomly for this purpose. A total of 29 respondents (5% of sample size) were interviewed. Findings were discussed among data collectors and supervisors in order to ensure better understanding to the data collection process.

4.10. Data quality control

Data quality was ensured during collection, coding, entry and analysis. During data collection, adequate training and follow up was provided to data collectors and supervisors. Supervision of data collectors includes observation of on how the data collectors were administering questions. Codes were given to the questionnaires and household during the data collection so that any identified errors were traced back using the codes. The filled questionnaires were checked for completeness by data collectors, supervisors and PI on a daily basis. Consequently, any problem encountered was discussed among the survey team and solved immediately.

Data first were checked manually for completeness then coded and entered into Epi-Info version 3.5.1statistical software and cleaned thoroughly before transferred to SPSS version 16 for further analysis. The data was further cleaned by visualizing, double entry on 10% of questionnaires, calculating frequencies and sorting. Corrections were made according to the original data.

4.11. Data analysis procedure

Univariate analysis was done using frequency and percentage. Bivariate analysis also was performed. Multiple logistic regression analysis was also done to control for possible confounding variables. Those variables which were showed significant association on bivariate analysis were adjusted to each other to identify independent associated variables. P-value and 95% confidence interval (CI) for OR were used in judging the significance of the associations. P-value less than 0.05 were taken as significant association. The data of the qualitative method was

organized in narrative forms in congruent with the respondents' own words on the same day and was analyzed by framework analysis.

4.12. Ethical consideration

The survey was conducted after approval by the IRB (Institutional Review board) of School of Public Health, AAU. Official letters was obtained from SPH, AAU to the respective officials, in turn the Woreda Administration Office; wrote a letter for study kebeles to get recognition and collaboration. Informed verbal consent was obtained from respondents after explaining the objective of the study. At the end of the interview health information regarding risks of home delivery, possible complications of pregnancy and how to respond to them was provided as deemed necessary. In addition, all the responses were kept confidential and anonymous by assuring that any information concerning them was never passed to any individual or institution without their agreement. Women were kindly requested to be included in the study but were told that it is their right to participate or not.

4.13. Dissemination of results

Though the primary objective of this thesis is a requirement for master's in public health and will be defended at the School of Public Health, Addis Ababa University, a short report will be communicated to the Woreda Health Office and Woreda Administration.

Presentations at professional, local, national and international meetings and publication in peer reviewed national or international journals will be attempted.

5. Result

5.1 Socio-demographic characteristics of study population

A total of 575 women out of 581, who gave birth in the past twelve months prior to this study were interviewed making a response rate of 99%. One hundred thirty five (23.5%) were less than 20 years while elderly gravida (35 years and above) were 21(3.7%). The mean age was 25±4.6 years, with range of 14-38 years (Table.1).

Concerning marital status, 545(94.8%) of the women were currently married. With regard to religion 446(77.6%) were Muslim while 129(22.4%) were Orthodox Christian.

The majority, (94.8%) belong to the Oromo ethnic group. Among the interviewed mothers 398(69.2%) with no formal education, 132(23 %) were with primary education, 34(5.9%) were able to read and write and the rest 11(1.9%) had secondary education and above.

The majority, (97.7%) were housewives. With regard to the income of respondents, 143(24.9%) had income of 717ETB and above, 143(24.9%) had income of 476-716ETB, 146(25.4%) had income of 131-475ETB and the rest 143(24.9%) had below 131ETB income per month. Mean ±SD for monthly income of the respondents was found to be ETB 486.2± 412.3. With husband's education of the respondents' 253(44%) were having primary education, 236(41%) has no formal education, 40(7%) were able to read and write and the rest 32(5.6%) completed secondary education and above.

Table 1: Selected Socio-demographic characteristics of respondents among women aged 15-49 years, Robe Woreda, January, 2012. (n=575)

Variables	Frequency	Percent
Age of respondents		
<20	135	23.5
20-34	419	72.9
35-49	21	3.7
Marital status		
Married	545	94.8
Separated	16	2.8
Widowed	7	1.2
Single	4	0.7
Divorced	3	0.5
Religion		
Muslim	446	77.6
Orthodox	129	22.4
Ethnicity		
Oromo	545	94.8
Amhara	30	5.2
Educational status		
Illiterate	398	69.2
Read and write	34	5.9
Primary education	132	23
Secondary education & above	11	1.9
Occupational status		
Housewife	562	97.7
Farmer	4	0.7
Private employee	1	0.2
Merchant	8	1.4
Monthly Income		
< 131Birr	143	24.9
131- 475 Birr	146	25.4
476 -716 Birr	143	24.9
>716	143	24.9
Family size		
1-3	83	14.4
4-6	285	49.6
>=7	207	36

5.2. Obstetric history and ANC experience of the respondents

The majority (86.4%) of the respondents have attended antenatal care (ANC) at least once in their last pregnancy period. Of the total, 49% respondents started their follow up while the pregnancy was between 4 and 6 months and 31% respondents had their first ANC visit in the first three months of pregnancy. One hundred thirty nine (28%) of the total ANC visit respondents had 4 or more visits. The reasons given by the mother's for follow-up of ANC were for their health in general 226(39.8%), to know the condition of pregnancy 119(20.7%), for vaccination only 106(18.4%), for vaccination and checkup 62(10.8%) and for nutrition advice 13(2.3%). Some, 46(8%) of the mothers didn't know the purpose of ANC follow-up while they follow-up ANC.

For 95 (16.5%) of mothers the last pregnancy was their first and 188 (32.7%) of them had 5 and above pregnancies. Among the respondents 88 (16.8%) had one child, 276 (52.7%) had 2-4 children and 160 (30.5%) had >=5 children with mean parity of 3.6±2.1.

Majority, 515 (89.6%) women became pregnant at the age of <20 years and 60 (10.4%) between the age of 21- 29 years with mean age of 17.27±2.95. Fifty one (8.9%) respondents had history of abortion whereas 1.6% had history of still birth (Table 2).

Five hundred twenty two (90.8%) women delivered at home whereas 9.2% gave birth in health institutions.

Reasons given for home delivery included, short and smooth labor 514 (98.5%), normal previous home delivery 185 (35.4%), too much cost of health facility 7 (1.3%), presence of TBAs 6 (1.1%), poor quality service of health facility 3 (0.6%), informed that their pregnancy was normal 2 (0.4%), health facility too far 2 (0.4) and other reasons 4 (0.8%).

Reasons given for institutional delivery among those who gave birth at health facility were, difficult labor 32(60.4%), need better service in health facility 14 (26.4%), informed to deliver in health facilities 13(24.5%), Poor out comes from previous home delivery11 (20.8%), previous better outcomes from Institutional delivery 4 (7.5%) and health facility close to where they live 2(3.8%).

Table 2: Obstetric history and ANC experience of respondents among women aged 15-49 years, Robe Woreda January, 2012. (n=575)

Variables	Frequency	Percent
Gravida (total no. of pregnancy)		
1	95	16.5
2-4	292	50.8
>=5	188	32.7
Parity (total no. of birth)		
1	88	16.8
2-4	276	52.7
>=5	160	30.5
Age at first pregnancy		
<20	515	89.6
21-29	60	10.4
Age at last pregnancy		
<20	141	24.5
21-29	347	60.3
>=30	87	15.1
ANC visit		
Yes	497	86.4
No	78	13.6
ANC frequency		
One	15	3
Two	43	8.7
Three times	300	60.4
Four and above	139	28
Mode of delivery for last pregnancy		
Spontaneous vaginal delivery	554	96.3
Instrumental delivery	14	2.4
Cesarean section	7	1.2
Birth at HF before last delivery		
Yes	64	11.1
No	511	88.9
Birth order of last baby		
First	95	16.5
Second	98	17
Third	114	19.8
Fourth and above	268	46.6
History of abortion		
Yes	51	8.9
No	524	91.1
History of still birth		
Yes	9	1.6
No	566	98.4

5.3. Knowledge of respondents about danger signs during pregnancy

Relatively low proportion, 217 (37.7%), 58 (10.1%) and 36 (2.2%) of the respondents spontaneously mentioned blurred vision, vaginal bleeding and swollen hands/face as danger signs during pregnancy, respectively. Two hundred thirty one (40.2%) spontaneously mentioned at least one key danger sign, 75 (13%) mentioned at least two key danger signs and 5 (0.9%) mentioned all three key danger signs.

5.4. Knowledge on danger signs during labor/childbirth

Three hundred sixty (55%), 244 (42.4%), 153(26.6%) and 66 (11.5%) of the respondents spontaneously mentioned prolonged labor, retained placenta, severe vaginal bleeding and convulsions as danger signs during labor and childbirth respectively. Four hundred fifty six (79.3%) respondents spontaneously mentioned at least one key danger sign, 244 (42.4%) mentioned at least two key danger signs while 75 (13%) cited at least three key danger signs. Only four (0.7%) respondents named all four key danger signs.

5.5. Knowledge on danger signs during post partum period.

One hundred ninety six (34.1%), 59 (10.3%) and 49 (8.5%) of the respondents spontaneously mentioned severe vaginal bleeding, foul smelling vaginal discharge and high fever as danger signs during post partum period, respectively. Two hundred forty eight (43.2%) of the study participants spontaneously mentioned at least one key danger sign, 55 (9.6%) mentioned at least two key danger signs and one (0.2%) mentioned all three key danger signs.

Some of the TBAs in in-depth interviews and mothers in focus group discussion have mentioned some of the danger signs during pregnancy, delivery and post-partum period.

The majority of the TBA's interviewed explained the issue using the following expression or one similar to it:

"I said that when the mothers developed vaginal bleeding, prolonged labor and retained placenta, she would be in the serious problems or in danger condition ……especially if there was a retained placenta it was a severe one, because the placenta goes to her head and kill immediately."

Mothers addressed the issue in this way:

"I said when mothers developed dizziness, vaginal bleeding, vomiting and retained placenta; she would be in a dangerous health problems."

5.6. Knowledge of respondents about preparation for birth and its complication

Five hundred sixty one (97.6%), 401 (69.7%), 394 (68.5%), 292 (50.8%) and 57 (9.9%) spontaneously mentioned as it is useful when saving money, identified means of transportation, identified skilled provider, identified place of delivery and blood donor respectively.

Majority (63.8%) of respondents were agreed as there were any danger signs that can occur during pregnancy, labour and post-partum while 208(36.2%) were not report any danger signs that can occur during pregnancy, delivery and post-partum period. Among study participants, 13% of respondents knowledgeable on danger signs during pregnancy while 13% of respondents were knowledgeable on danger signs during delivery. Only 9.6% of respondents had knowledge on danger signs of post-partum period (Table 3).

Table 3: Knowledge of respondents about preparation for birth and its complication among women aged 15-49 years, Robe Woreda, January, 2012 (n=575)

Variables	Frequency	Percent
Identify place of delivery		
Yes	292	50.8
No	283	49.2
Saving money		
Yes	561	97.6
No	14	2.4
Prepare essential items for child birth		
Yes	574	99.8
No	1	0.2
Identify skilled provider		
Yes	394	68.5
No	181	31.5
Awareness on the danger signs of:-		
Pregnancy	75	13
Delivery	75	13
Post-partum	55	9.6
Identify a mode of transportation		
Yes	401	69.7
No	174	30.3
Arranging blood donors		
Yes	57	9.9
No	518	90.1
Obstetric danger signs during pregnancy, labour and post-partum		
Yes	367	63.8
No	208	36.2

Blurred vision was the most known danger sign in pregnancy spontaneously mentioned by 37.7% of the respondents, followed by hemorrhage which spontaneously mentioned by 10.1% of the respondents. Severe vaginal bleeding and swelling of hands and face were known by very few respondents. Severe vaginal bleeding was reported by 26.6% and 34.1% of the respondents during delivery and post-partum period respectively.

Maternal knowledge on severe vaginal bleeding during pregnancy, delivery and post-partum period were transformed on SPSS into a single variable. Most (45.6%) of the respondents didn't mention severe vaginal bleeding spontaneously as a danger sign during pregnancy, delivery and post-partum period. Among study participants, almost half (54.4%) of respondents mentioned severe vaginal bleeding at least in one of the three periods while 13.6% mentioned spontaneously in two of the three periods. Only 2.8% of respondents mentioned severe vaginal bleeding spontaneously as a danger sign during pregnancy, delivery and post-partum period (Table 4).

Table 4: Knowledge of danger signs during pregnancy, delivery and post-partum period among women aged 15-49 years, Robe Woreda, January, 2012 (n=575).

Variables		Response	Frequency	Percent
Pregnancy	Severe vaginal bleeding	Spontaneous	58	10.1
		Prompt	272	47.3
		I don't know	245	42.6
	Swollen hands/face	Spontaneous	36	6.3
		Prompt	311	54.1
		I don't know	228	39.7
	Blurred vision	Spontaneous	217	37.7
		Prompt	296	51.5
		I don't know	62	10.8
Delivery/Labour	Severe vaginal bleeding	Spontaneous	153	26.6
		Prompt	304	52.9
		I don't know	118	20.5
	Prolonged labour(>12hrs)	Spontaneous	316	55
		Prompt	223	38.8
		I don't know	36	6.3
	Convulsion	Spontaneous	66	11.5
		Prompt	371	64.5
		I don't know	138	24
	Retained placenta	Spontaneous	244	42.4
		Prompt	298	51.8
		I don't know	33	5.7
Post-partum period	Severe vaginal bleeding	Spontaneous	196	34.1
		Prompt	206	35.8
		I don't know	173	30.1
	Foul-smelling vaginal discharge	Spontaneous	59	10.3
		Prompt	335	58.3
		I don't know	181	31.5
	High fever	Spontaneous	49	8.5
		Prompt	378	65.7
		I don't know	148	25.7
Hemorrhage	Mothers who mentioned spontaneously vaginal bleeding as danger sign during pregnancy, delivery and post-partum period	None	262	45.6
		At least once	235	40.9
		At least two	62	10.8
		At least three	16	2.8

5.7. Practices of respondents regarding preparation for birth and its complication

Almost all (99.1%) of the respondents reported that they made some arrangement for birth during their last delivery. Some of preparations reported by the mothers were food; like grain for porridge, butter, honey and sheep and a new blade for cord cutting, cloths for newborn, cleaning the room where delivery would be conducted and identified helper during delivery. Among the total, there were women who reported that making critical preparations such as arranging transportation, identifying an institution for delivery, identified skilled attendant and saving money.

Of those 439 (76.3%) reported spontaneously that they saved money, 262 (45.6%) identified place of delivery, 164 (28.5%) identified a mode of transportation and 17 (3%) identified skilled provider (Table 5). But, among mother's who identified place of delivery(45.6%), majority of the mothers (40.7%) planned to give birth at home while only (4.9%) of the mothers planned to give birth at the nearest health facility. In general birth preparedness and complication readiness among the age group 15-49 years with birth in the one year prior to the survey was 16.5%.

Of the 575 mothers, 78 (13.6%) experienced delivery- related complication(s) cited earlier; 54 (69.2%) of the 78 mothers were delivered by a skilled birth attendant, whereas 24(30.8%) did not go to health facilities to gain the delivery services.

In focus group discussions and in-depth interviews of mothers and TBA's that were mentioned problems related to referral system, majority of the mothers and TBA's interviewed explained the conditions. Now a day if there were problems and told to them to go to health facilities, the mothers will go to health facility without delays. Even if she had no any money for transport and other payment, she would be supported by relatives and communities and carried by people to health facility.

The majority of the TBA's and mothers interviewed explained using the following expression:

"If problems occurred and told to them to go to health facility they directly go to health facility. Mothers who have no money for transport and other cost are supported and carried by people. We know that there is no need of payment for normal delivery. If may be operation was needed, there were payment that was contributed and paid by the communities."

Table 5: Practices of respondents on preparation for birth and its complication among women aged 15-49 years, Robe Woreda, January, 2012 (n=575).

Variables	Frequency	Percent
Identify place of delivery		
Yes	262	45.6
No	313	54.4
Save money		
Yes	439	76.3
No	136	23.7
Prepare essential items for child birth		
Yes	570	99.1
No	5	0.9
Identify skilled provider		
Yes	17	3
No	558	97
Designate decision maker		
Self	96	16.7
Husband	28	4.9
Self and husband jointly	451	78.4
Identify mode of transportation		
Yes	164	28.5
No	411	71.5
Identify blood donors		
Yes	6	1
No	569	99
Delivery place of last baby		
Home	522	90.8
Health institutions	53	9.2
Persons who assisted births		
Skilled attendant	53	9.2
TTBA	34	5.9
UTBA	199	34.6
Family member/neighbor/self	289	50.3

In qualitative part of in-depth interviews and focus group discussions there were mothers and TBA's interviewed.

Majority of TBA's and mothers mentioned the most common maternal problems in the area were blurred vision, retained placenta and prolonged labor. Some TBA's and mothers also explained distance of health facility is the major challenge for mothers in the area.

One TBA from one kebele mentioned the most common maternal health problems in the area as follows: *"Problems that mothers faced were blurred vision and prolonged labor. Also too far health facility is the major challenge for mothers in our area."*

Most of mothers and TBA's also mentioned as major problems that affect maternal health during pregnancy, delivery and post-partum period. The major problems of mothers those mentioned were fetching water, carrying wood and preparing food, looking after cattle, supporting their husband on farm activities and to clean the house including the cattle house and compound during pregnancy, delivery and post-partum period. As they explained those activities harm the mothers especially during pregnancy to expel the fetus before it reaches completed months of delivery.

Among focus group discussion one mother explained as follows:

"The problems in our area were suffering from heavy work during pregnancy; like fetching water, carrying wood and looking after cattle. Due to those heavy works some mothers may expel out their fetus before it reaches completed months to deliver normally."

In focus group discussions and in-depth interviews mothers and TBA's were mentioned traditional practices done in the area by the mothers or the community especially during pregnancy, childbirth and immediately after delivery assuming it will benefit the mother's health. Among those traditional practices mentioned by the mothers and TBA's were roasting 'Abish' and mixing with butter and then the mother inhale it and giving old/fermented butter for the mother to drink it, giving fresh butter for newborn and cutting uvula.

Among TBA's those interviewed one expressed the issue as follows:

"In our culture we gave for mothers to drink old/fermented butter to clean out her uterus from clotting blood……..also immediately we gave for newborn a fresh butter after birth, because till the mother's breast got enough milk it is used for new born as a food……..still I believe all those activities are useful for newborn and mothers as we have seen even from experiences."

Mother's especially younger mothers were more explained traditional practices positively. They mentioned those traditional practices like giving for newborn anything before six months, cutting uvula and other harmful practices were forbidden and affects mothers and newborn health.

Among mothers of 15-30 years old of focus group discussion one mother expressed the issue as follows: *"In the past time our mothers gave fresh butter for newborn, cutting uvula and even circumcised……but, now a day HEWs tells us not to give anything for newborn before six months."*

Finally, the mothers and TBAs recommended that government should give the services for the mothers; especially during delivery the service should be free for the mothers. Furthermore, ambulance should prepare for the mothers for emergency situation.

5.8. Factors influencing birth preparedness and complication readiness

5.8.1. Socio-demographic factors

In bivariate analysis maternal education was significantly associated with birth preparedness and complication readiness. Mothers whose educational status was secondary high school and above were about 10 times more likely to prepare for birth and it's complication than women with other levels of education (COR= 10.06, 95% CI: 2.85, 35.42). The present study revealed that women who had incomes of >=717 ETBirr were about two times more likely to prepare for birth and its complication than women having incomes of less than 716 Birr (COR=2.1, 95%CI: 1.14, 3.83).

Knowledge of the danger signs of obstetric complications was also significantly associated with birth preparedness and complication readiness. Mothers who know the presence of obstetric complications were three times more likely to prepare for birth and its complications than mothers who didn't know the presence of complications (COR=3.03, 95%CI: 1.74, 5.29) (Table 6).

Table 6: Association of Socio-demographic factors influencing respondent's birth preparedness and complication readiness among women aged 15-49 years, Robe Woreda, January, 2012. (n=575)

Variable	Birth preparedness		COR	95%CI
	Yes n (%)	No n (%)		
Age of Respondents				
<20	29(30.5%)	106(22.1%)	1.00	1.00
20-34	62(65.3%)	357(74.4%)	0.64	(0.38, 1.04)
35-49	4(4.2%)	17(3.5%)	0.86	(0.26, 2.75)
Religion				
Muslim	73(76.8%)	373(77.7%)	1.00	1.00
Orthodox	22(23.2%)	107(22.3%)	1.05	(0.62, 1.8)
Ethnicity				
Oromo	91(95.8%)	454(94.6%)	1.00	1.00
Amhara	4(4.2%)	26(5.4%)	0.77	(0.26, 2.25)
Educational status				
Illiterate	59(62.1%)	339(70.6%)	1.00	1.00
Read and write	1(1.1%)	33(6.9%)	0.17	(0.02, 1.29)
Primary education	28(29.5%)	104(21.7%)	1.55	(0.93, 2.55)
Secondary education & above	7(7.4%)	4(0.8%)	**10.05***	**(2.85, 35.42)***
Monthly Income				
< 131Birr	20(21.1%)	123(25.7%)	1.00	1.00
131- 475 Birr	18(18.9%)	128(26.7%)	0.865	(0.44, 1.7)
476 -716 Birr	21(22.1%)	122(25.5%)	1.059	(0.55, 2.05)
>716	36(37.9%)	106(22.1%)	**2.089***	**(1.14, 3.83)***
Family size				
1-3	16(16.8%)	67(14%)	1.00	1.00
4-6	50(52.6%)	235(49%)	0.89	(0.48, 1.66)
>=7	29(30.5%)	178(37%)	0.68	(0.35, 1.34)
Obstetric danger signs during pregnancy, labour and post-partum				
Yes	78(82.1%)	289(60.2%)	**3.03***	**(1.74, 5.29)***
No	17(17.9%)	191(39.8%)	1.00	1.00

5.8.2. Past obstetric experiences associated with birth preparedness

Birth order of four or more and being grand multipara found to be significantly associated with birth preparedness and complication readiness. As birth order increases birth preparedness and complication readiness decreases (COR= 0.455, 95% CI: 0.25, 0.82). As gravidity and parity increases more than five pregnancy/child birth, birth preparedness and complication readiness decreases (COR= 0.42, 95% CI: 0.22, 0.79 and COR= 0.41, 95% CI: 0.22, 0.77) respectively.

Obviously, prenatal visit was found to be predictor of birth preparedness and complication readiness. Women who had history of antenatal visit were more likely to prepare for birth and its complication (COR=8.75, 95% CI: 2.11, 36.26). Frequency of antenatal care follow-up also found to be strong predictor of birth preparedness and complication readiness (COR= 11.51, 95% CI: 2.39, 55.47). Mothers who had given birth at health facility before their last delivery were more likely to prepare for birth and its complication (COR= 3.72, 95% CI: 2.11, 6.54).

Moreover, mothers who had past history of still birth were more likely to prepare for birth and its complication (COR=4.18, 95% CI: 1.1, 15.85) (Table 7).

Table 7: Association of obstetric factors influencing respondent's birth preparedness and complication readiness among women aged 15-49 years, Robe Woreda, January, 2012

Variable	Birth preparedness		COR	95% CI
	Yes n (%)	No n (%)		
Gravid (total no. of pregnancy)				
1	23(24.2%)	72(15%)	1.00	
2-4	50(52.6%)	242(50.4%)	0.65	(0.37, 1.13)
>=5	22(23.2%)	166(34.6%)	**0.42***	**(0.22, 0.79)***
Parity (total no. of birth)				
1	26(27.4%)	79(16.5%)	1.00	
2-4	48(50.5%)	245(51%)	0.59	(0.35, 1.02)
>=5	21(22.1%)	156(32.5%)	**0.41***	**(0.22, 0.77)***
Age at first pregnancy				
<20	81(85.3%)	434(90.4%)	1.00	
21-29	14(14.7%)	46(9.6%)	1.63	(0.86, 3.1)
Age at last pregnancy				
<20	33(34.7%)	108(22.5%)	1.00	
21-29	47(49.5%)	300(62.5%)	0.51	(0.31, 0.84)
>=30	15(15.8%)	72(15%)	0.68	(0.35, 1.35)
ANC visit				
Yes	93(97.9%)	404(84.2%)	**8.75***	**(2.11, 36.26)***
No	2(2.1%)	76(15.8%)	1.00	
ANC frequency				
One	3(3.2%)	12(2.5%)	1.00	
Two	10(10.5%)	33(6.9%)	**9.5***	**(1.44, 62.88)***
Three times	50(52.6%)	250(52.1%)	**10.5***	**(2.43,45.08)***
Four and above	30(31.6%)	109(22.7%)	**11.5***	**(2.39, 55.47)***
Given birth at health facility before last delivery				
Yes	24(25.3%)	40(8.3%)	**3.72***	**(2.11, 6.54)***
No	71(74.7%)	440(91.7%)	1.00	
Birth order				
First	23(24.2%)	72(15%)	1.00	
Second	19(20%)	79(16.5%)	0.75	(0.38, 1.5)
Third	19(20%)	95(19.8%)	0.63	(0.32, 1.24)
Fourth and above	34(35.8%)	234(48.8%)	**0.46***	**(0.25, 0.82)***
History of abortion				
Yes	4(4.2%)	47(9.8%)	0.41	(0.14, 1.15)
No	91(95.8%)	433(90.2%)	1.00	
History of still birth				
Yes	4(4.2%)	5(1%)	**4.18***	**(1.1, 15.85)***
No	91(95.8%)	475(99%)	1.00	

5.9. Multivariate analysis of socio- demographic and obstetric influencing factors on birth preparedness and complication readiness adjusted for possible confounding variables

By Applying multiple logistic regression on socio demographic variables; women's education and monthly income and obstetric factors; gravida, parity, ANC visit, knowledge of the danger signs of obstetric complications, presence of history of still birth, history of delivery at health facility before last delivery, and birth order were adjusted. Only their educational status and their monthly income were significantly associated with birth preparedness and complication readiness among socio-demographic variables. If women have secondary education and above six times and monthly income above 716ETB two times were more likely to prepare for birth and its complication (AOR=6.23 and 95%CI= 1.5- 25.87) and (AOR=1.97 and 95%CI=1.01-3.87) respectively. Also mothers who know the presence of obstetric complications were three times more likely to prepare for birth and its complications than mothers didn't know the presence of complications (AOR=2.94, 95%CI: 1.61, 5.37) (Table 8).

When the obstetric factors; gravida, parity, ANC visit, knowledge of the danger signs of obstetric complications, presence of history of still birth, history of delivery at health facility before last delivery and birth order with socio demographic variables; women's education and monthly income were adjusted, only ANC visit and history of delivery at health facility before last delivery have significantly associated with birth preparedness and complication readiness (Table 8).

Women who had ANC visits were six times (AOR=5.68 95%CI= 1.27, 25.41) more likely to prepare for birth and its complication when compared to those who did not have ANC visit. Women who had history of delivery at health facility before last delivery were four times (AOR=3.9 95% CI= 2.04, 7.46) more likely to prepare for birth and its complication when compared to those who did not have history of delivery at health facility before last delivery.

Table 8: Socio-demographic and obstetric factors influencing birth preparedness and complication readiness adjusted for confounding variables, in Robe Woreda, January, 2012

Variable	Birth preparedness		COR(95% CI)	AOR(95% CI)
	Yes	No		
Women's education				
Illiterate	59(62.1%)	339(70.6%)	1.00	1.00
Read and write	1(1.1%)	33(6.9%)	0.17(0.02, 1.3)	0.15(0.02, 1.2)
Primary education	28(29.5%)	104(21.7%)	1.55(0.94, 2.55)	1.36(0.76, 2.43)
Secondary education & above	7(7.4%)	4(0.8%)	**10.1(2.85, 35.42)***	**6.23(1.45, 25.87)****
Monthly Income				
< 131Birr	20(21.1%)	123(25.7%)	1.00	1.00
131- 475 Birr	18(18.9%)	128(26.7%)	0.87(0.44, 1.7)	0.98(0.46, 2.06)
476-716 Birr	21(22.1%)	122(25.5%)	1.06(0.55, 2.05)	1.11(0.54, 2.3)
>716	36(37.9%)	106(22.1%)	**2.1(1.14, 3.83)***	**1.97(1.01, 3.9)****
Gravida (total no. of pregnancy)				
1	23	72	1.00	1.00
2-4	50	242	0.65(0.37, 1.13)	5.49(0.32, 94.87)
>=5	22	166	**0.42(0.22, 0.79)***	0.44(0.006, 31.66)
Parity (total no. of birth)				
1	26	79	1.00	1.00
2-4	48	245	0.59(0.35, 1.02)	0.97(0.17, 5.53)
>=5	21	156	**0.41(0.22, 0.77)***	5.39(0.16, 184.59)
ANC **visit**				
Yes	93	404	**8.75(2.11, 36.26)***	**5.68(1.27, 25.4)****
No	2	76	1.00	1.00
Obstetric danger signs during pregnancy, labour and post-partum				
Yes	78(82.1%)	289(60.2%)	**3.03(1.74, 5.29)***	**2.94(1.61, 5.37)****
No	17(17.9%)	191(39.8%)	1.00	1.00
Birth at HF before last delivery				
Yes	24	40	**3.72(2.114, 6.54)***	**3.9(2.04, 7.46)****
No	71	440	1.00	1.00
Birth order				
First	23	72	1.00	1.00
Second	19	79	0.75(0.38, 1.5)	0.12(0.004, 4.37)
Third	19	95	0.63(0.32, 1.24)	0.1(0.002, 3.9)
Fourth and above	34	234	**0.46(0.25, 0.82)***	0.1(0.003, 3.59)
History of still birth				
Yes	4	5	**4.18(1.1, 15.85)***	4.95(0.73, 33.45)
No	91	475	1.00	1.00

6. Discussion

This community –based study has attempted to identify the extent and factors associated with birth preparedness and complication readiness in Robe Woreda. The study finding revealed that proportion of birth preparedness and complication readiness was 16.5%.

This study also showed that preparedness for birth and its complication with secondary or higher education are six times more likely to prepare for birth and its complication than illiterate women. In addition women who have ANC visits, women who have knowledge of obstetric complications, those who have given birth at health facility before their last delivery, those who have income of >716ETB, are more likely to prepare for birth and its complication than those who are disadvantaged.

One of the most important functions of antenatal care is to offer women advice and information about birth preparedness, danger signs of obstetric complication and emergency preparedness. Birth preparedness is a fundamental component of antenatal care whose aim is to reduce any unnecessary delays to seek emergency obstetric care hence improve maternal and fetal outcomes [1].

Any visit to health facility is significantly associated with birth preparedness and complication readiness as previous study [10]. Those who visit health facilities were six times more likely to prepare for birth and its complication. This could be explained by the fact that those who visit health facility may have the chance to get information on the importance of institutional delivery and to prepare for birth and its complication which can help them to make informed decision on the delivery plan.

Evidence suggests that ANC is more effective when received earlier in the pregnancy [1]. In this study 31% of the respondents had first ANC visit in the first three months of pregnancy. This is higher compared to the Ethiopian Demographic and Health Survey 2011 7.7% for women residing in rural areas. The reasons for this higher coverage may be due to accessibility of health posts and unlike delivery service, HEWs' involvement in prenatal care service provision and positive perception of the community towards such service as indicated in the FGD. The possible reasons for this study also could be on specific area while EDHS is nationwide study.

Currently, a minimum of four ANC visits for a woman is recommended by WHO. A study showed that women who receive four ANC visits with effective interventions are as likely to have good outcomes as women who receive more visits[3]. In this study, 28% of the respondents had four or more visits. This is higher than reports of Ethiopian DHS 2011 for women residing in rural areas (14.4%) and lower than a study finding in Adigrat town (73.2%)[10].

Home delivery is the norm in many developing countries where mortality tends to be the highest in this case. In the present study, only 9.2% of the mothers had given birth in health facilities. This indicates that still the majority (90.8%) of mothers preferred home delivery. This finding is almost consistent with studies conducted by Ethiopian DHS 2011 for Oromia Region (8.1%) and in South and North Wollo Zone which showed that 5.5 % deliveries are managed by health professionals[11]. Other community-based survey done 2004 in North Gondor 13.5% of the respondent had delivered in health institution[12]. All of those studies reported that large numbers of women are delivering at home by untrained traditional birth attendants and relatives.

The reasons for not utilizing health service facility for delivery include: short and smooth labor 98.5%, normal previous home delivery 35.4%, too much cost of health facility 1.3%, presence of TBAs 1.1%, poor quality service of health facility 0.6%, informed that their pregnancy was normal 0.4%, health facility too far 0.4% and other reasons 0.8%.
The reasons for not utilizing the service are almost similar with study done 2004 in north Gondor 44.7 % of the respondents reported that labour was short and smooth, needed relative's attention during labor 14.3%, facility too far and the presence of TBA are 15.2% and 14.9% respectively. About 7% gave a reason of lack of money [12].

An important aspect of assessing birth preparedness and its complication readiness is measuring spontaneous knowledge of essential danger signs of obstetric and newborn complications. Knowledge of the danger signs of obstetric complications is the first step in the appropriate and timely referral for essential obstetric care[2, 3]. The spontaneous knowledge of respondents about key danger signs is higher when compared with other study[10] which indicate the good awareness of women and a possible high chance of good outcome of pregnancy. This could be attributed by HEWs to be aware about obstetric complications and to promote utilization of health care services. Also mothers may not practice all what they know due to different factors.

Knowledge of the danger signs of obstetric complications are an essential step in recognition of complications and enable one to take appropriate action to access emergency care. Approximately 25% of maternal deaths occur due to severe vaginal bleeding as obstetric complication worldwide [2-4].

Vaginal bleeding which is a danger sign of obstetric complication was not known by 45.6% of the respondents. This is worrying given that hemorrhage is the leading cause of maternal mortality worldwide and responsible for 33% of all maternal deaths[3]. Equally worrying was the inability of the most respondents to identify danger signs which indicate severe pre-eclampsia and eclampsia such as blurred vision and swelling of hands/face.

About 45.6% of the respondents reported that they identified place of delivery ahead of childbirth. Place of delivery identification is very important especially in this setting where the main means to get a skilled provider is to deliver at health institutions. But, among mother's who identified place of delivery(45.6%), majority of the mothers (40.7%) had planned to give birth at home while only (4.9%) of the mothers had planned to give birth at the nearest health facility. Still this indicated that majority of the mothers wanted to give birth at their home.

Many obstetric complications are unpredictable and can arise suddenly without warning [2]. Having a plan for emergencies like what transport to use during the day and at night, how much it would cost and availability of funds can help reduce delays in getting to hospital. Every pregnant woman should have a written plan for emergencies.

Lack of money and transportation is a barrier for seeking care as well as identifying and reaching medical facilities[3, 4]. The money saved by woman or her family can pay for health services and supplies, vital for transport, or other costs such as loss of work. Likewise, if a woman can afford to pay for these costs, she is more likely to seek care[3]. In the present study, 76.3% of the respondents saved money for childbirth which is higher compared to a study in Adigrat (68.9%)[10]. This could be due to the cultural value of the community in the study area that is report as they prepare or save money even if they do not save, means social desirability bias. Even when money is available, it can be difficult to secure transport at the last minute after a complication has occurred.

Arranging transport ahead of time reduces the delay in seeking and reaching services. In this study, 28.5% of the respondents has identified transportation ahead of childbirth which is higher compared to a study in Adigrat (24.7%)[10]. This could be due to difference in transport type and increased awareness of mothers by HEWs towards identifying transportation ahead of childbirth to health facilities and may also as there is longer period between the two studies.

This study also majorly tried to identify about arrangements made during pregnancy by the mothers for birth and its complication and the result showed that 16.5% of respondents / their family members had made arrangement in a comprehensive way prior to the last childbirth commonly by identified a means of transportation, identified skilled provider, saving money and identified place of delivery.

But a study conducted to assess birth preparedness and complication readiness among women in Adigrat town is higher than this study which taking into account place of delivery identification, means of transportation and saving money, about 22% of the respondents were prepared for birth and its complication[10]. Other study conducted to assess birth preparedness and complication readiness among women in Northern Nigeria, also higher than this study, taking into account preparing essential items for clean delivery, place of delivery identification and saving money, about 27.5% of the respondents were prepared for birth and its complication[20]. This difference on preparation made for birth seen between those study populations might be respondents in the current study are rural community while both studies were urban community, since this is may be due to the difference in awareness and educational level of those communities.

Educated mothers were six time more likely to be prepared for birth and its complication than illiterate (AOR= 6.23, 95% CI= 1.5, 25.87). As study in India showed mother's education had large positive effects on the institutional delivery [15, 19].

Studies done in Ethiopia also indicate similar conclusions. According to the community-based study in Gulele district, Addis Ababa, the risk of choosing to deliver at home was found high for those who are illiterate[16]. Similarly, the study done in Arsi zone central Ethiopia indicate, women who had no formal schooling are found to attend antenatal care less likely[17]. It is obvious that more educated mothers tend to have better awareness on warning signs of obstetric

complications. It also might be related to the fact that educated women have better power to make their own decision in matters related to their health and the expected expenses.

Consistent with different studies [20-22] monthly income also found to be predictor for birth preparedness and complication readiness. Mother who have income of 717ETB and above were more than two times more likely to prepare for birth and its complication than monthly income of below 716 ET birr. These could be economic status of mother is able to make wise decision and payment about her own than their counterparts.

Having knowledge of obstetric complications was found to have statistical significance with birth preparedness and complication readiness both in this study and other similar studies done in Ethiopia and other places [10, 15, 20-22]. The reason for this might be mothers with knowledge of obstetric complications may fear something may happen and need advice and support from health personnel.

Some Consistent with other studies, women who had ever given birth in the health facility before were four times more likely to prepare for birth and its complication. This strong significant association could partly be explained due to increased in mothers' confidence and trust on providers from previous use of the service [20-22].

7. Strength and limitation of the study

Strength

- The study was rural community- based
- Data collectors were similar sex
- Qualitative study supplemented the finding of quantitative study
- High response rate

Limitation

- Since the study is cross sectional, temporal relationship could not be established.
- The findings are self-reported; therefore, there can be some recognition and recall bias. To minimize recall bias, we selected mothers with infants of age 12 months and lower.

8. Conclusion

- The respondents' knowledge of danger signs was low.
- A large proportion of clients were not prepared for obstetric emergencies. Proportion of births attended by skilled attendant was very low.
- A huge gap between ANC utilization and HF delivery was identified since out of the total 86.4% mothers who attended ANC only 9.2% delivered in the HF.
- Women educational status, ANC visits, knowledge of obstetric complications, income level and history of giving birth at health facility before their last delivery are important predictors for birth preparedness and complication readiness.
- Proportion of ANC visit and saving money for emergency case was high. However, the rate might be increased due to social desirability bias.
- Based on the study there are women who are disadvantaged in every aspect of the investigated factors. Therefore, if conditions like education, ANC visit and income are available birth preparedness and complication readiness can be facilitated.
- Traditional practices which are more harmful to the health of mothers and the newborns like giving fermented butter for mothers to clean the uterus, giving fresh butter for the new born, cutting uvula, that are exercised during childbirth were identified in the study area.

9. Recommendation

- As women's education is an important predictor for their birth preparedness and complication readiness there should be increasing education opportunities for mothers particularly for the girls. Therefore, policy makers and concerned stakeholders, government and non-government bodies should give great emphasis to education.
- Health professionals should promote ANC follow up and provide information on the problems of obstetric complications and on the importance of birth preparedness and complication readiness at every child birth for every woman who came to health facility in general and at ANC visit in particular.
- Birth preparedness and complication readiness should be made an integral part of maternal and child health services, to enable women to recognize danger signs and access a skilled caregiver in pregnancy. Therefore, training of health extension workers on BP/CR should be given emphasis in order to reach the disadvantaged women.
- Community health activities such as community awareness programs, home visit, community health agents and community-based delivery systems must focus those who are not literate, who did not get BP/CR information and who did not come for ANC.
- Harmful traditional practices that are commonly practiced during pregnancy and childbirth should be minimized by involving different concerned bodies.
- Further research on quality of maternal health services; particularly the reason for gaps between ANC, BP/CR and delivery service utilization, provider's knowledge and attitude towards BP/CR.

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11. Annexes

11.1. Conceptual framework

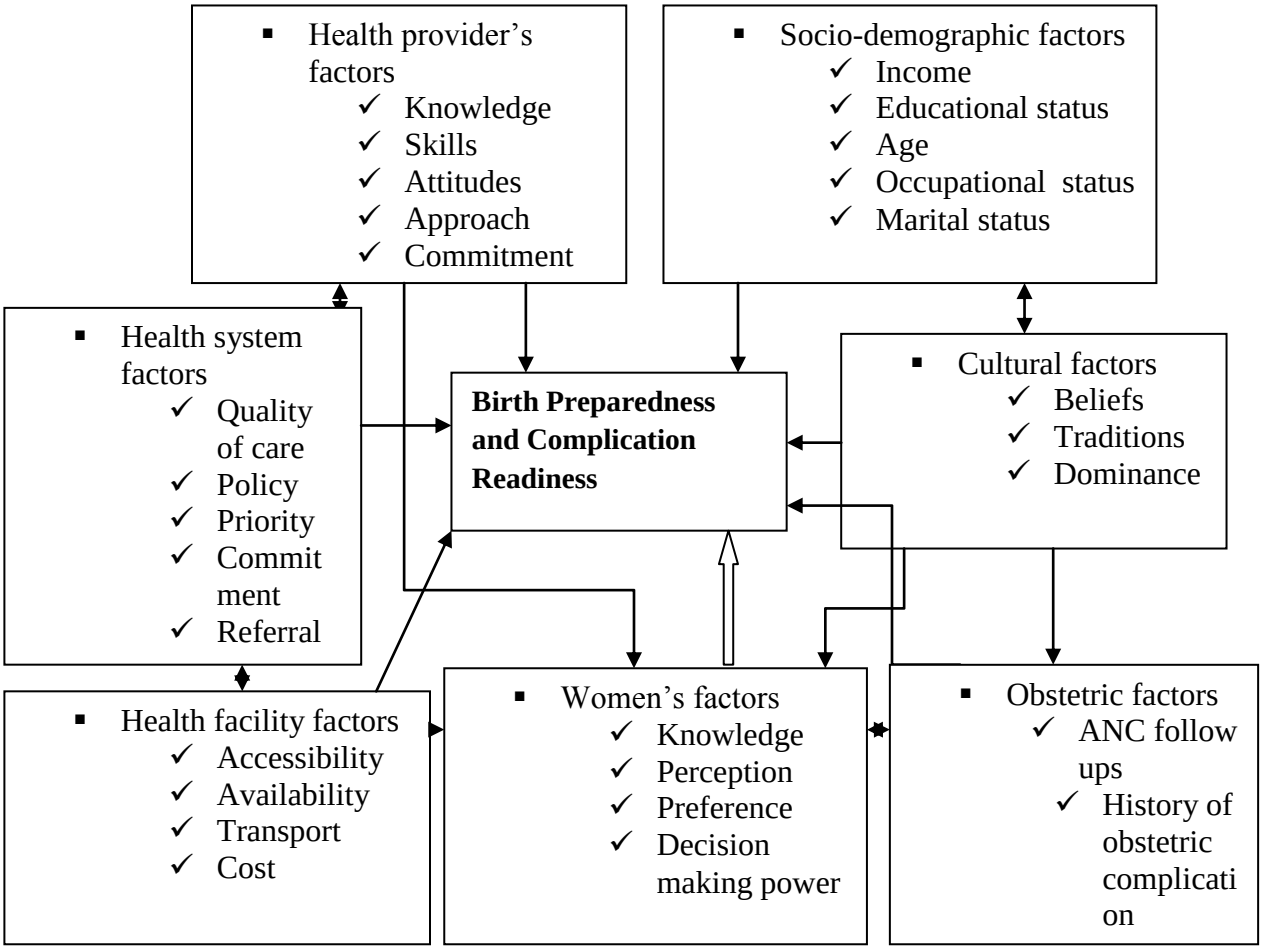

Fig2. Conceptual framework on factors that affect women's birth preparedness and complication readiness during pregnancy and childbirth

11.2. Study information sheet

Addis Ababa University School of Public Health

Good morning/afternoon. My name is _____.

I am MPH student from Addis Ababa University School of Public Health to perform research on Assessment of birth preparedness and complication readiness among women who gave birth in the last 12 months preceding the survey.

The study will be community based, conducted from September, 2011to April 2012. The information will be collected from 581 individual women who gave birth with in 12months prior to the survey by using pre-tested structured questionnaires on socio-demographics, obstetric factors, knowledge and practice on BP/CR through randomly selected houses in five selected kebeles. To supplement quantitative findings, focus group discussions and in depth interviews will be conducted with locally respected women between age 15-49 years and TBAs. There are no risks or direct benefits to you from participating in this survey.

But, the information obtained through this survey by your participation will help the individual women in child bearing age to prepare for safe delivery service utilization, the workers to improve institutional delivery service provision and the government to allocate logistics, supplies and to design strategies to improve institutional delivery service.

You have been selected for the interview by means of a random selection process, much like picking an orange out of a basket without looking. I would like to ask you a few questions if I may, but you can refuse to answer any question. You may end the interview at any time. You can also refuse to participate in the study entirely. The interview will last approximately 30 minutes. The information we collect from you will not be shown to anyone outside of this project.

If you have any question about this study, you can ask now and contact us at the address listed below.

Name of PI: - Muhammedawel Kaso
Addis Ababa University
Cell phone: 091-393-46-38/ 091-039-12-99
Email- muhammedawel@gmail.com or
Institution review board (IRB)
Addis Ababa University
Tele-+251-111-553-873

11.3. Verbal Consent Form

It has been read to me in the language I understand all conditions stated above. Therefore, I am willing to participate in this study.

Result of interview:

1. Completed 2. Respondent not available 3.Refused 4. Partially completed

Checked by:

Supervisor Name _____ signature_____

Date_____/_____/____E.C.

Time Interview Started: Hour: _____ Minute: _____

Questionnaire No_____

Household ID No_____

Time Interview Ended: Hour: _____ Minute: _____

_____

Name of interviewer

Date _____/_____/_____E.C. signature_____

If respondent does not agree to be interviewed thanks her and go to the next respondent's house.

11.4. English version Questionnaires

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

Section 1.Sociodemographic Information

S.no. (Q#)	Questions	Alternatives/ Choices of responses	Code	Skip
101	What is your age in completed years?	**.....** Years.		
102	To which religion do you belong?	1. Muslim 2. Orthodox 3. Protestant 4. Other		
103	What is your ethnicity?	1. Oromo 2. Amhara 3. Gurage 4. Other		
104	What is your current marital status?	1. Single 2. Married/in Union 3. Widowed 4. Divorced 5. Separated		
105	What is the highest grade you completed?	1. None 2. Read and write 3. Primary 4. Secondary and above		
106	What is your occupation?	1. Housewife 2. Farmer 3. Gov't. employee 4. Private employee 5. Merchant		

		6. Other specify……..		
107	Monthly income in Eth.Birr	……Eth.birr.		
	If married or in union			
108	Age of husband in completed years	……..years.		
109	What is the highest grade your husband completed?	1. None 2. Read and write 3. Primary 4. Secondary and above		
110	What is your husband's current occupation?	1. Farmer 2. Gov't. employee 3. Private employee 4. Merchant 5. Daily laborer 6. Other specify……		
111	Monthly income of your husband.	……Eth.birr		
112	Total household income per month.	……. Eth.birr		
113	Family size	……		
114	How it takes from your home to health center/hospital in minutes?	1. <15minutes 2. 15-30minutes 3. >30minutes		
115	Who is the decision maker for health service seeking during pregnancy, delivery and postpartum period?	1. Self 2. Husband 3. Self and Husband jointly 4. Other specifies.		

Section II: gravidity and parity/obstetric information.

S.no. (Q#)	Questions	Alternatives/ Choices of responses	Code	Skip
201	According to your birth order where does the last baby belong?	1. First 2. Second 3. Third 4. Fourth and above		
202	How many times you became pregnant in your life?	……		
203	How old were you in your first pregnancy?	……..years		
204	How old were you in your last pregnancy?	……..years		
205	What were the outcomes of the pregnancies? (Ask for each item and put numbers on the space)	1. Total lives birth……. 2. Abortion……. 3. Still birth…… 4. Others (specify)…..		

Section III: Service use and planning actions: intention and behaviors/knowledge

S.no. (Q#)	Questions	Alternatives/ Choices of responses	Code	Skip
301	Did you attend ANC before your last pregnancy?	1. Yes 2. No		
302	Did you planned to attend ANC visits during Your last pregnancy?	1. Yes 2.No		
303	Did you attend ANC visits during your last pregnancy?	1. Yes 2. No →		Q307

304	If yes, Whom did you see during your last ANC visits?	1. Physician 2. Health Officer 3. Nurse 4. HEWs 5. Others (specify)		
305	At how many weeks /months of pregnancy you start ANC?	…….weeks/months.		
306	How many times you attend ANC in last pregnancy?	1. One 2. Two 3. Three times 4. Four and above		
307	Do you think ANC useful for pregnant women?	1. Yes 2. No		
308	If yes, why?	……		
309	If no, why?	……		
310	Did you prepare for your last delivery?	1. Yes 2. No		→Q312
311	If yes, What preparation you did in your last delivery?	1. Grain for forage 2. Cloths for newborn 3. Identified helper 4. Others (specify)		
312	Do you think preparation for delivery service useful?	1. Yes 2. No		
313	If yes, why?	……		

314	If no, why?	……		
315	Did you planned on place of delivery?	1. Yes 2. No → Q317		
316	If yes, Where was the place of delivery you planned?	1. Home 2. Gov. hospital 3. Health center 4. Health post 5. Others specify		
317	Do you think planning place for delivery useful?	1. Yes 2. No		
318	If yes, why?	…….		
319	If no, why?	……..		
320	Where did you deliver your last child?	1. Home 2. Gov. hospital 3. Health center 4. Health post → Q322 5. Others specify		
321	If home, Why did you prefer to deliver at home? (More than one response is possible)	1. Too much cost of HFs 2. Facility too far 3. Poor quality service of HFs 4. No female provider at HFs 5. Husband will not allow 6. Need to be with relatives 7. Presence of TBAs 8. Labor was smooth and short 9. Previous HDs was normal		

		10. Lack of accompanies 11. I was told my pregnancy is normal 12. Lack of transport 13. Others specify.		
322	If HFs, Why did you prefer to deliver in health facilities?	1. HF was near to me 2. Need better service 3. Previous better outcome with delivering at HF 4. I was told to deliver at health facilities 5. Difficult labor 6. Bad outcome with previous delivery 7. Other		
323	What was the mode of your last delivery?	1. Spontaneous vaginal delivery 2. Instrumental delivery 3. Cesarean section 4. I did not remember 5. Other specify……..		
324	Have you ever given birth at HFs before your last delivery?	1.Yes 2.No →		Q326
325	If yes in how many pregnancies?	_____		
326	Do you think institutional delivery useful for mother and newborn?	1. Yes 2. No		
327	If yes, why?	……		

328	If no, why?	……..		
329	Did you plan skilled assistant during delivery?	1.Yes 2.No →		Q331
330	If yes, Whom were you planned to assist you?	1. Physician 2. Health officer 3. Nurse 4. HEW 5. Other (specify)		
331	Who assisted you during your last delivery?	1. Physician 2. Health officer 3. Nurse 4. HEW 5. Trained traditional birth attendant 6. Untrained birth attendant 7. Other (specify		
332	What was the condition of your last baby?	1. Live birth 2. Live birth but died soon after 3. Still birth 4. Other specify……		
333	Had you plan to save money for obstetric emergency?	1. Yes 2. No		
334	Did you saved money for obstetric emergency?	1. Yes 2. No		
335	Do you think saving money useful for obstetric emergency?	1. Yes 2. No		
336	Do you think planning for emergency transport useful?	1. Yes 2. No		

337	Had you plan a mode of transport to place of delivery during emergency?	1. Yes 2. No →		Q339
338	If yes, What was a mode of transport you had planned? (ask those planned for emergency transport)	1. On foot 2. By cart 3. On horseback 4. Carried by other people 5. By car 6. Motor bicycle 7. Others specify……		
339	Did you plan blood donor during obstetric emergency?	1. Yes 2. No		
340	Do you think planning blood donor useful?	1. Yes 2. No		
341	Did you encounter any health problems during labour, delivery and immediately after birth during your last delivery?	1. Yes 2. No →		Q401
342	If yes, what were the problems?	1. Excessive vaginal bleeding 2. Prolonged labour(> 12hrs) 3. Retained placenta(>1hrs) 4. Inability to control urine/faces/both 5. Mal-presentation 6. Fetal death 7. Early rupture of membrane 8. Loss of consciousness 9. Other specify		
343	Were you referred to HF further? (ask those who faced	1. Yes 2. No →		Q401

	the problem)			
344	If you referred to HF, who accompanied you to HF(ask referred)	1. Husband 2. Relatives 3. Community emergency committee 4. Alone 5. Others specify…		
345	If you were referred to health facility, what mode of transport you used to reach to the health facility?(ask referred)	1. On foot 2. By cart 3. On horseback 4. Carried by other people 5. By car 6. Motor bicycle 7. Others specify……		

Section IV: - Instruction- put 'x' mark under prompted for respondents mentioned obstetric danger signs, '√' mark for spontaneously mentioned and non for not know in both cases.

S.no. (Q#)	Questions	Alternatives/ Choices of responses	Code	Skip
401	Are there any obstetric danger signs that can occur during pregnancy, labour and postpartum?	1. Yes 2. No →		Q404
402	If yes, from where did you hear these danger signs?	1. Health workers 2. HEWs 3. Community health volunteers 4. Radio 5. Television 6. Read from books 7. Others		
403	Do you think these danger	1. Yes		

	sings can threaten the life of a woman?	2. No		
404	What are danger sings occur during pregnancy? (first do not mention the options to identify whether they list spontaneously or not)	1. Severe vaginal bleeding 2. Swollen hands/face 3. Blurred vision 4. I don't know		
405	Are there any danger signs that can occur during labour?	1. Yes 2. No		
406	What are these danger signs? (first do not mention the options to identify whether they list spontaneously or not)	1. Severe vaginal bleeding 2. Prolonged labour (>12hrs) 3. Convulsion 4. Retained placenta 5. I don't know		
407	Are there any danger signs that can occur during postpartum period?	1. Yes 2. No		
408	What are danger signs that Can occur during postpartum? (first do not mention the options to identify whether they list spontaneously or not)	1. Severe vaginal bleeding 2. Foul-smelling vaginal discharge 3. High fever 4. I don't know		

This is all what I want to ask you. Thank you for spending your time and valuable information you gave us. Do you have any question that I can address for you?

_____

_____

_____

11.6. Consent form for FGDs and in-depth interviews

Consent form for focus group discussion (after study information sheet will be explained)

I the under signed have been informed that the interview is conducted to gather information about the effect of BP/CR on safe delivery service utilization. The result of the study will help the government, the community, health provider and individual women to improve safe delivery service utilization. I also agreed about confidentiality of the respondent to be at highest possible level. Therefore, I am willing to participate in this study.

Code	Age	Income	Education	Occupation	Marital status	Signature	Date
1. ……	……	……..	……	…….	……..	……	……
2.……	……	……..	……	…….	……..	……	……...
3.……	……	……..	……	…….	……..	……	……..
4.……	……	……..	……	…….	……..	……	…….
5.……	……	……..	……	…….	……..	……	…….
6.……	……	……..	……	…….	……..	……	……..

Name of moderator……..

Signature ……..

Date ……

Name of note taker …….

Signature …….

Date …….

11.7. Guiding questions for Focus Group Discussions and in depth interview

1. What are the most common maternal health problems in your area?
2. When do you say a women during pregnancy, childbirth or postpartum is in a dangerous health status?
3. What are traditional practices done in this area by the mothers or the community especially during pregnancy, childbirth and immediately after delivery assuming it will benefit the mother's health?
4. If a woman during pregnancy or childbirth got a serious problem and referred, can she readily go to the referred site without delay? What difficulties she would face?
5. Are you satisfied or dissatisfied with the maternal health care services given by HEWs/other health workers in the health posts/other health facilities and strengths and limitations of health facilities in the provision of maternal health care? Elaborate some of the reasons.
6. What do you think are the possible solutions to improve maternal health in your area**?**

11.8. Afan Oromo study information sheet

Yunivarsitii Finfinneetti, Mana Barnoota Fayyaa Hawaasaa

Guca Odeeffannoo Qu'annaa

Akkam bultan/ooltan. Ani maqaan kiyya_____jedhama.

Ani barataa Mastarii Fayyaa Hawaasaa ta'e kan dhufe Yunivarsitii Finfinne Mana BarnootaFayyaa Hawaasaa yoo ta'u, dhimmi isaas qu'anno waa'ee tajaajila da'umsa fayyadamuuf rakko ulfaa fi da'umsaan wal-qabateef qophaa'uu kan jedhu dubartoota ji'a 12 dura dahan irratti adeemsisudhaafi.

Qu'annan kan adeemsifamu Fulbaana 1,2004-Ebla 30,2004 A.L.I.tti hawaasa naannoo irratti hundaa'ee yoo ta'u, odeeffannoonis kan guuramu dubartoota 581 irraa ji'a 12 dabre keessatti dahan kan gand shanii keessaa carradhaan filataman gaaffilee seerawa waa'ee hawasumma,tajaajila fayya fi hanqina namootaa waliin wal-qabatan fayyadamuudhani. Qu'anna dubartootarraa guuramuun alatti marriin gara garaa dubartoota umri 15-49 jidduu jiran kan ganda keessatti kabaja qaban, deesiftoota aadaa fi ekisteenshinoota fayyaa waliin ni gaggefama. Qu'anna kana irrattii hirmaachun keessan miidhaas ta'e faayidaa kallatti isin irratti hin qabu.

Garuu bu'aan qu'anno kanaa dubrtoota umrii itti da'an kessa jiran akka isaan tajaajila da'umsaa qulqulluutti fayyadaman, hojjataan fayyaa akka tajaajila da'umsaa kennamu fooyyessu fi mootummaanis akka karooraa fi meeshaalee tajaajila qulqulluu da'umsa kennuuf fayyadan qopheesuuf oola.

Isin immoo kan filatmtan carradhaan akkuma burtukaana qabee keessa jiru osoo hin ilaalin tokko olfuudhaniitti. Amma gaaffii muraasa waan isin gaafachuu barbadeef, gaaffii hin bardaadin dhiisuu dandeettan. Yeroo barbaaddanitti gaaffii addaan kutuu fi gonkumaa hirmaachuu dhabus ni danddeetu. Walii gala gaaffi fi deebiin tilmaaman kan nutti fudhatu daqiiqaa 30 yoo ta'u, odeeffannon isinirra argadhu immoo nama hojii kanaan alaa tokkotti hin argisiifamu.

Yoo qu'anno kanarratti gaafii qabattan ammaas ta'ee booda karaalee armaan gadii kanaan nu argachuu dandeettu.

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Guca waliigaltee afaaniin godhamu

Odeeffannoon waa'ee qu'anna armaan olitti ibsamee kun afaan ani hubachuu danda'uun naa dubbifamee naa galee jira. Kanaafuu, qu'annaa kanarratti hirmaachuun fedhii kiyya ta'uu ni ibsa.

Bu'aa qu'annaa

1. Xumurame 2. Gaafatamaan hin jiru 3. Gaafatamuu hin barbaanne 4. Muraasni guutame

Kan mirkaneesse

Maqaa too'ataa_____mallattoo_____

guyyaa_____

Yeroo gaaffin itti eegale: sa'a:_____ daqiiqa:_____

Lakk. Gaaffii_____

Lakk. ID mana_____

Maqa nama gaafatuu_____

Guyya _____/_____/_____ A.L.I. mallattoo_____

Yeroo gaaffin itti xumurame: sa'a_____ daqiiqa_____

Yoo gaafatamaan hin eeyyamin galateefadhuuti gara gaafatamaa itti aanutti deemi.

11.9. Afan Oromo version questionnaires

kutaaI:- odeeffanno haala hawaasummatii fi qabeenya ilaallatu

Lakk.	Gaaffilee	Filanno	Koodii	Gara gaafii birootti uttaali.
101	Umriin keessan hagami?	waggaa…….		
102	Amantaa kam hordoftan?	1. Muslima 2. Ortodooksi 3. Prootestaantii 4. Kan biroo…..		
103	Sabni keessan kami?	1. Oromoo 2. Amaaraa 3. Guraagee 4. Kan biro…….		
104	Haalli fuudha heeruma keessani amma akkami?	1. Hin heerumne 2. Heerume 3. Lubbun hin jiran 4. Wal-hikne 5. Iddoo garagaraa jiraanna		
105	Sadarkaan barnoota keessan gola meeqa?	1. Homaa 2. Dubbisuu fi barressu 3. Sadarka tokkoffa 4. Sadarka lammaffafi sana oli		
106	Hojiin keessan maali?	1. Haadha manaa 2. Qotee bulaa 3. Hojjataa mootumma 4. Hojjataa waajjira dhuunfaa 5. Daldalaa 6. Kan biro…….		
107	Galiin keessan ji’aan meeqa?	Birri Itiyoopiya……..		
	Yoo heerumte			
108	Umriin abba warraa keessan meeqa?	Waggaa …….		
109	Sadarkaan barnoota abbaa warra keessani	1. Homaa 2. Dubbisuu fi barressu		

	gola meeqa?	3. Sadarkaa tokkoffaa 4. Sadarkaa lammaffaa fi sana oli		
110	Hojiin abbaa warraa keessanii amma maali?	1. Qotee bulaa 2. Hojjataa mootumma 3. Hojjata waajjira dhuunfa 4. Daldalaa 5. Hojjata guyya hojii human 6. Kan biro…….		
111	Galiin abbaa warraa keessanii kan ji'aa meeqa?	Qr. Itiyoopiyaa…….		
112	Galiin ji'aa walii gala mana keessanii meeqa?	Qr. Itiyoopiyaa…….		
113	Baay'inni maatii keessanii meeqa?	……..		
114	Daqiiqa hangam buufanni fayya ykn hospitaalii mana keessanirra deemsisa?	1. <15 daqiqa 2. 15-30 daqiqa 3. >30 daqiqa		
115	Eenyu murteessan dhimma mana yaala dhaqu kessatti yeroo ulfaa fi da'umsa?	1. Isin 2. Abbaa warraa 3. Isin lamaan waliin 4. Kan biraa……		

Kutaa II:- Odeefanno haala ulfaatii fi da'umsaatiin wal-qabate

Lakk.	Gaaffilee	Filanoo	Koodii	Gara gaafii birootti uttaali.
201	Akkataa da'umsa keessaniitiin, daa'imni isa dhuma isa meeqafaadh?	1. Tokkoffaa 2. Lammaffaa 3. Sadaffaa 4. Afraffaa fi sana oli		
202	Umrii keessan keessatti yeroo meeqa ulfooftan?	……		
203	Yeroo ulfa duraa umriin keessan meeqa?	Waggaa ……...		
204	Yeroo ulfa isa dhuma umriin keessan meeqa?	Waggaa ……..		
205	Walii galli ulfa keessanii	1. Lubbun kan		

	maal maal ture?(tokko tokkon gaafadhu lakk. Guuti)	dhalatan……. 2. Kan isinirra bahan…….. 3. Lubbun kan hin dhalatin…… 4. Kan biro……		

Kutaa III:- Tajaajilatti fayyadamu fi tarkanfii sagattefachu:yaadaa fi amala/beekumsa

Lakk.	Gaaffilee	Filanno	Koodii	Gara gaaffi biraatti uttaali
301	Ulfa keessan isa dhumaa kana dura hordoffi tajaajila ulfa gootanii jirtu?	1. Eeyye 2. Miti		
302	Yeroo ulfa dhumaa hordoffi tajajila ulfa godhuuf karoorfattani?	1. Eeyye 2. Miti		
303	Yeroo ulfa dhumaa hordoffi tajajila ulfa gootanii jirtu?	1. Eeyye 2. Miti		G307
304	Yoo eeyye ta'e, eennutu isin ilaale?	1. Haakima 2. Qondaala fayya 3. Narsii 4. Ekisteeshini fayya 5. Kan biraa…..		
305	Torbaan ykn baatii meeqati tajajila hordoffi ulfa eegaltan?	Torbaan/Baatii ……		
306	Ulfa keessan kan dhumaa irratti yeroo hagam hordoffi tajaajila ulfa deddebitan?	1. Tokko 2. Lama 3. Sadi 4. Afurii fi sana oli		
307	Tajaajilli hordoffi ulfaa kun dubartii ulfaa ni fayyada jettanii yaaddu?	1. Eeyye 2. Miti		
308	Eeyye yoo ta'e, maaliif?	……		
309	Miti yoo ta'e, maaliif?	……		

310	Daha isa dhumaa keessaniif qophi gootanii jirtu?	1. Eeyye 2. Miti →		G312
311	Qophin isin daha dhumaatiif gootan maali?	1. Harcee marqaaf 2. Uffata daa'imaa dhalatuuf 3. Nama isin qarqaaru addan baafachu 4. Kan biraa……..		
312	Tajaajila ulfaatiif qophahun ni fayyada jettanii yaaddu?	3. Eeyye 4. Miti		
313	Eeyye yoo ta'e, maaliif?	……		
314	Miti yoo ta'e, maaliif?	……		
315	Iddoo itti deettan saganteeffatanii jirtu?	1. Eeye 2. Miti →		G317
316	Eeyye yoo ta'e, Eessattida'uuf saganteeffatan?	1. Mana 2. Hospitaala mootumma 3. Buufata fayya 4. Keella fayya 5. Kan biraa……..		
317	Iddo itti da'an saganteeffachuun ni fayyada jettani yaaddu?	1. Eeyye 2. Miti		
318	Eeyye yoo ta;e, maaliif?	…….		
319	Miti yoo ta'e, maaliif?	……..		
320	Daa'ima keessan isa dhumaa eessatti deettan?	1. Mana 2. Hospitaala mootumma 3. Buufata fayya → 4. Keella fayyaa 5. Kan biraa……..		G322
321	Maaliif manatti da'uu filattan?	1. Gatiin tajaajila fayyaa qaalii waan ta'ef		

	(kan manatti da'an qofa gaafadhu)	2. Iddon fayya baay'ee fagata 3. Tajaajilli fayyaa baay'ee laafadha 4. Dubartiin tajaajila kennitu hin jirtu 5. Abban warraa na hin eeyyamu 6. Waan firatti hajamuuf 7. Ogeettiin aadaa waan jirtuuf 8. Ciniinsuun waan daddaftuu fi laaftuuf 9. Dura nagumaan waan manatti da'eef 10. Nama na waliin deemu dhabuu 11. Ulfi kee nagaha jedhanii naaf himan 12. Geejjiba dhabuu 13. Kan biraa…….		
322	Maaliif buufata fayyatti deettan? (kan buufata fayyatti dahan qofa gaafdhu)	1. Waan iddon fayyaa kaluu ta'eefi 2. Tajaajila fooyya'aa argachuuf 3. Waan bu'aa gaarii tajaajila fayya keessatii tana dura argadheefi 4. Buufata fayyatti akka da'u natti himame 5. Ciniinsuun waan natty cimeef 6. Daha duraa keessatti rakkoon waan narra ga'eef 7. Kan biraa……		
323	Daha dhumaa tana akkamitti deettan?	1. Ofumaan kara gadamessatiin 2. Meeshadhaan kara gadamessatiin 3. Garaa baqaqsuudhaan 4. Hin yaadadhu		

		5. Kan biraa……		
324	Daha keessan kan dhuma kana dura buufata fayyatti deettanii beeytuu?	1. Eeye 2. Miti →		G326
325	Yoo eeyyee ta'e, yeroo hagamiif?	……..		
326	Buufata fayyatitti dahuun haadhaa fi daa;imaaf ni Fayyad jettanii yaaddu?	1. Eeyye 2. Miti		
327	Eeyye yoo ta'e,maaliif?	…….		
328	Miti yoo ta'e,maaliif?	…….		
329	Hojjatan fayya akka isin deesisuu saganteefatanii jirtu?	1. Eeyye 2. Miti →		G331
330	Eeyye yoo ta'e, Ogeessa fayyaa gosa kamitu akka isin deesisu saganteefatan?	1. Haakima 2. Qondaala fayya 3. Narsii 4. Ekisteenshinii fayyaa 5. Kan biraa……..		
331	Yeroo deettan eennutu isin qarqaare?	6. Haakima 7. Qondaala fayya 8. Narsii 9. Ekisteenshinii fayyaa 10. Deesiftu aadaa leenjite 11. Deesiftu aadaa hin leenji'in 12. Kan biraa……..		
332	Haalli daa'ima keessan isa dumaa maal ture?	1. Lubbuun dhalate 2. Lubbun dhalate, garuu yoma san najala deebi'e 3. Lubbun hin dhalane 4. Kan biraa……..		

333	Rakko yeroo ulfaa fi da'umsaa tasa uumamuf mallaqa kuufachuuf saganteefatanii?	1. Eeyye 2. Miti		
334	Rakko yeroo ulfaa fi da'umsaa tasa uumamuf mallaqa kuufatanii jirtu?	1. Eeyye 2. Miti		
335	Mallaqa, rakko yeroo ulfaa fi da'umsaatiif tasa uumamuf kuufachun ni fayyada jettani yaaddu?	1. Eeyye 2. Miti		
336	Rakko tasa yeroo da'umsa uumamuf gosa geejiba gara tajaajila da'umsaatti isin geessuuf saganteeffattanii jirtu?	1. Eeyye 2. Miti		
337	Geejjiba rakko tasaatiif karoorfachuun ni fayyada jettanii yaaddu?	1. Eeyye 2. Miti		
338	Gosti geejjiba rakko tasaatiif karoorfattan kami?(isaan karoorfatan gaafadhu)	1. Miilaan 2. Gaarii 3. Fardaan/Gaangeen 4. Naman baadhatamuun 5. Konkolaatan 6. Motor saykila 7. Kan biraa……..		
339	Rakko yeroo ulfaa fi da'umsaa tasa uumamuf qaama dhiiga isinii kennu karoorfattanii jirtu?	1. Eeyye 2. Miti		
340	Dhiiga kenna rakko tasaatiif karoorfachuun ni fayyada jettanii yaaddu?	1. Eeyye 2. Miti		
341	Rakkon fayya yeroo ciniinsuu,da'umsaa fi battala da'umsa boodaa, da'umsa dhuma irratti isin qunname jira?	1. Eeyye 2. Miti →		G401
342	Yoo eeyye ta'e, rakkon maal ture?	1. Dhiigni hedduun jiguu 2. Ciniinsuun dheerachu (sa'a		

		12 oli) 3. Hobbatiin turu (sa'a tokko oli) 4. Fincaan ykn boowlii ykn lachanuu qabachuu dadhabuu 5. Daa'imni akka maleetti dhufuu 6. Daa'imni garatti du'uu 7. Bishaan fuulaa dursee jiguu 8. Of wallaaluu 9. Kan biraa…….		
343	Gara tajaajila fayyaatti ergamtanii? (kan rakkoon isaan mudate gaafadhu)	1. Eeyye 2. Miti		
344	Yoo gara tajaajila fayyatti ergamtan, eennutu isin fide? (kan ergaman gaafadhu)	1. Abbaa warraa koo 2. Fira 3. Garee rakkoo tasaa hawaasumma 4. Kophaa koo 5. Kan biraa……		
345	Yoo gara tajaajila fayyatti ergamtan, gosti geejjibaa ittii fayyadamtan kami?	1. Miilaan 2. Gaarii 3. Fardaan/Gaangeen 4. Naman baadhatamuun 5. Konkolaatan 6. Motor saykila 7. Kan biraa……..		

Kutaa IV:- odeeffannoo mallattoolee hama yeroo ulfaa fi da'umsaa

Lakk.	Gaaffilee	Filannoo	Koodii	Gara gaafii biraatti utaali
401	Mallattooleen hamaan yeroo ulfaa, ciniinsuu fi booba da'umssa uumaman jiru?	1. Eeyye 2. Miti →		G404
402	Yoo eeyye ta'e,	1. Hojjataa fayyaa		

	mallattoolee hama kana eessaa dhageetan?	2. Ekisteenshinii fayyaa 3. Raayyaa fayyaa kan fedhii hawaasa keessa 4. Raadiyoo 5. Televizniinii 6. Kitaabarraa dubbisuun 7. Kan biraa……		
403	Mallattooleen hamaan kunniin jireenya dubartii ni miidha jettee yaadda?	1. Eeyye 2. Miti		
404	Mallattooleen hamaan yeroo ulfaa uumaman maal fa'i?	1. Dhiigni hedduun gadamessa keessa jigu 2. Fuulli/harki iita'uu 3. Ittii dukanaa'uu/lafti maruunii 4. Hin beeku		
405	Mallattooleen hamaan yeroo ciniinsuu uumaman jiru?	1. Eeyye 2. Miti		
406	Mallattooleen sunniin maal fa'i?	1. Dhiigni hedduun jigu 2. Ciniinsuun dheerachuu (sa'a 12 oli) 3. Of wallaaluu/gaggabdoo 4. Hobbaatiin hafu 5. Hin beeku		
407	Mallattooleen hamaan yeroo da'umsaan boodaa uumaman jiru?	1. Eeyye 2. Miti		
408	Mallattooleen sunniin maal fa'i?	1. Dhiigni heddun jigu 2. Jiidhini hafuurri isaa dhahu/ajaa'u gadamessa keessa yaa'uu 3. Hoo'a nafaa guddaa 4. Hin beeku		

Gaaffiin ani qabu hanganuma.Waan yeroo keessan fixxanii odeeffanno barbachisaa naa kennitaniif baay'ee isin galateefadha.Gaaffiin akka isinii ibsu barbaddan jira?

_____

_____

Guca waliigaltee warra garee mariitiif (erga odeefannon kennamee booda)

Ani kan mallattoon kiyyaa armaan gaditti jiru dhimma rakkoo ulfaa fi dahaan wal-qabate irratti dursanii qophii godhuun dhiibbaa akkam akka tajaajila da'umsa irratti qabu beekuuf qoratamu irratti ibsi naaf godhamee jira. Bu'aan qoranno kanaas faayida motummaadhaaf, hawaasaaf, hojjata fayyaatiif, akkasumas dubrtootaaf akka tajaajila fayyatti fayyadamanii fi fooyyessan taasisa.Kana malees, odeeffannoon qu'annoo kanaaicciitiin isaaakka haala gaariidhaan eeggamu itti amaneejira.Kanaafuu, qu'annaa kanarratti hirmaatuun fedhii kiyya ta'uu mallattoo kiyyaan ykn afaaniin ibsa.

Koodii	Hirmmaattota	Umrii	Galii	Sad.bar.	Hojii	Hala fudha	Mallattoo	Guyyaa
1.....	.....	.....	.....	.....	.....	.....	.....	
2.....	.....	.....	.....	.....	.....	.....	.....	
3.....	.....	.....	.....	.....	.....	.....	.....	
4.....	.....	.....	.....	.....	.....	.....	.....	
5.....	.....	.....	.....	.....	.....	.....	.....	
6.....	.....	.....	.....	.....	.....	.....	.....	

Maqa mari'achiisaa……

Mallaattoo ……

Guyyaa …….

Maqa barreessaa……..

Mallaattoo ……

Guyyaa ……

Gaaffilee marii haadholee fi deesiftuu waliin godhamu

1. Rakkoon ijoon haadholee naannoo keessanii maal fa'a?
2. Yeroo ulfaa, da'umsaa fi booda da'umsa haadholee, yoo maaltu uumame rakkoo guddaa jettanii yaaddu?
3. Gochaaleen aadaan wal-qabatan kan yeroo ulfaa, da'umsaa fi booda da'umsa haadholeen ykn hawasaan raawwataman kan haahdaa fi daa'ima fayyadan jedhamanii itti amanaman maal fa'a?
4. Yoo haadha takka rakkoon muudate akka mana yaalaa deemtu itti himame, daddaftee deemti? Rakkooleen akka daftee hin deemne godhan maal fa'a?
5. Kennaa tajaajila fayyaa ekisteenshinii fayyatiin ykn ogeessota fayyaa biraatiin kennamutti quuftan moo itti hin quufne? Wanti gaariin ykn rakkoon buufataleen fayya qaban maal fa'a?
6. Rakkoolee kana furuuf maal godhuu barbachisa jettan?

Declaration

1. Declaration of the Principal Investigator

I the undersigned, senior MPH student declare that this thesis my original work in partial fulfillment of the requirement for the degree of masters in public health, has not been presented for a degree in any other university. All the sources of material used and all people, institutions who gave support for the thesis have been fully acknowledged.

Name of the student: - Muhammedawel Kaso

Date._____ Signature _____

Place of submission: School of Public Health, Addis Ababa University

2. Approval of the advisor

This thesis work has been submitted for examination with my approval as university advisor

Name of the primary advisor: - Dr. Mesfin Addisse

Date._____ Signature _____