ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

Determinants of use of skilled birth attendance among mothers who gave birth in the past 12 months in Raya Alamata District: community based Comparative cross sectional study

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A Thesis to be Submitted to the School of Public Health, Addis Ababa University as Partial Fulfillment of the Requirements For the Degree of Master of Public Health

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Dedication

This thesis work is dedicated to the memory of my beloved mother who passed away while giving birth.

Acknowledgement

First and foremost, I would like to extend my sincere and deepest gratitude to my Advisor Professor Ahmed Ali, for his unreserved guidance and comments from the research proposal up to completion of this thesis.

My special thanks go to UNFPA for sponsoring this study.

I would like to thank AAU, SPH and Raya Alamata Health and Administrative offices for their cooperation to the successful accomplishment of this research project.

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My heartfelt thanks go to colleagues for their moral as well as material support.

Finally, I would like to acknowledge the study subjects who have kindly cooperated in providing the required information.

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List of Acronyms and Abbreviations

ANC	Antenatal care
BSc	Bachelor of Science
CI	Confidence Interval
COR	Crude Odds Ratio
AOR	Adjusted Odds Ratio
DHS	Demographic Health Survey
EDHS	Ethiopian Demographic Health and Survey
EJHD	Ethiopian Journal of Health Development
ETB	Ethiopian Birr
FGDs	Focus Group Discussions
FMOH	Federal Ministry of Health
HEWs	Health Extension Workers
HF	Health Facility
ID	Institutional Delivery
MDG	Millennium Development Goals
MMR	Maternal Mortality Ratio
MTP	Medically Trained Personnel
PNC	Postnatal Care
PPH	Postpartum Hemorrhage
SBA	Skilled Birth Attendant
SPSS	Statistical Package for Social Sciences
SSA	Sub-Saharan Africa
TBA	Traditional Birth Attendant
TTBA	Trained Traditional Birth Attendant
UN	United Nations
UNFPA	United Nations Population Fund
UNICEF	United Nations Children‟s and Educational Fund
WHO	World Health Organization
TV	Television

Abstract

Background: A large number of women are dying due to factors related to pregnancy and childbirth, especially in developing countries including Ethiopia, where maternal mortality ratio is one of the highest in the world. It is known that having a skilled birth attendant at every delivery can lead to marked reductions in maternal mortality. In Ethiopia, most births take place at home, particularly in rural areas, being not attended by a skilled birth attendant. The utilization of maternal health services is a complex phenomenon and it is influenced by several factors.

Objectives: This study assessed factors that determine the utilization of skilled birth attendants among mothers who gave birth in the past 12 months in Raya Alamata District, Tigray Region, Ethiopia.

Methods: Community-based comparative cross sectional study was conducted among mothers who gave birth in the past 12 months. Mixed methods of study combining both quantitative and qualitative research were used. A total of 580 study participants were recruited for the study. The investigator prepared pre-tested and structured questionnaire to collect data. Logistic regression was performed using SPSS version 16.0 software and thematic interpretation based on main categories was done for the qualitative data.

Results: A total of 567 mothers (172 urban and 395 rural) were included in the analysis. Only 23.1% of births were attended by SBAs. Over 44% of urban women delivered with skilled assistance compared to 13.9% of rural women. In multivariate analysis urban residence (AOR = 2.2, 95%CI: 1.2, 4.0), maternal formal education (AOR=5.2, 95%CI: 3.0-8.8), ANC visit during the last pregnancy (AOR = 3.8, 95%CI: 2.0-7.3), joint final decision making (AOR=3.3, 95%CI: 1.9-6.1), knowledgeable (AOR=2.95, 95%CI: 1.7-5.1) and favourable attitude towards danger signs of pregnancy, child birth and delivery services (AOR=2.6, 95%CI: 1.3-5.1) were most significant determinants of SBA use by mother. Age at interview 15-24 and 25-34 had also a significant effect on skilled birth attendant utilization with (AOR=4.8, 95%CI: 2.0-11.6) and (AOR=3.8, (95%CI: 1.7-8.6) respectively.

Conclusion and recommendation: Utilization of skilled delivery attendance services was still low with a high number of deliveries being attended by unqualified persons at home. Promotion of universal ANC follow-up and encouragement of mothers regarding the need for SBAs during childbirth is of paramount importance. Increase the awareness of mothers and their partners about the benefits of institutional delivery and SBAs and use of different means of behavioral change communication is very fundamental.

1. Introduction

1.1 Background

Maternal mortality remains a major challenge to health systems of developing countries (1). Each year, approximately 536,000 women die from complications related to pregnancy and childbirth, with 99% of those deaths occurring in Africa and Asia. Slightly more than half of these deaths occur in sub-Saharan Africa (2).

Globally, an estimated 287,000 maternal deaths occurred in 2010, a decline of 47% from levels in 1990. Sub-Saharan Africa and Southern Asia accounted for 85% of the global burden of maternal deaths with sub-Saharan Africa alone accounting for 56% in 2010 (3).

According to assessment of trends in maternal mortality for 181 countries from 1980–2008, the maternal death decreased from 526,300 in 1980 to 342,900 in 2008 with more than 50% of all maternal deaths were only from six countries in 2008 (India, Nigeria, Pakistan, Afghanistan, Ethiopia, and the Democratic Republic of Congo) (4).

Pregnancy and child birth complications are leading causes of death and disability among women of reproductive age in developing countries (4). Most maternal deaths occur during labor, delivery and the immediate postpartum period. Nearly two third of maternal deaths world wide are due to five direct causes: Obstetric hemorrhage is the main direct cause accounting for 25% of maternal deaths, infections (15%), unsafe abortion (13%), eclampsia (12%), and obstructed labor (8%) (5).

Major causes of maternal deaths in Ethiopia are similar to most developing countries such as infection, hemorrhage, obstructed labor, abortion and hypertension in pregnancy (6). These deaths could be avoided if preventive measures were taken and adequate care is available particularly during pregnancy, childbirth and postpartum period through obstetric care services (7).

Based on the available empirical evidence, facility based delivery at primary level, backed by access to referral-level facilities is a priority strategy for reducing maternal mortality (8). In an effort to reduce maternal mortality, the indicators of progress are Maternal Mortality Ratio and proportion of births attended by skilled attendants (9, 10). The risk of maternal death outside the intra-partum period can be reduced by using antenatal care, postnatal care and family planning (8). Moreover, providing skilled care at birth goes hand in hand with the Millennium Development Goal to reduce child mortality, particularly neonatal mortality. Nearly 3.4 million of the 8 million infant deaths each year occur within the first week of life and are often due to a lack of or inappropriate care during pregnancy, delivery and the post-partum period (11).

The fifth MDG aims at improving maternal health and targets reducing Maternal Mortality Ratio by 75% between 1990 and 2015 – that is, it seeks to achieve an expected 5.5% annual decline in MMR from 1990. However, MMR has decreased at the global level at an average of less than 1% annually between 1990 and 2005. To make the achievement of the fifth MDG a reality, MMR will have to decrease at a much faster rate especially in sub-Saharan Africa, where the annual decline has so far been about 0.41% (3). The recently released 2011 EDHS reported MMR of 676 per 100,000 which is a slight increase from the 2005 DHS which was MMR of 673 per 100,000 (12, 13).

Based on National Reproductive Health Strategy the country planned to increase the proportion of births attended by skilled health personnel either at home or in a facility to 60%. In addition, reduce maternal mortality to 350 deaths per 100,000 live births and decrease the proportion of abortion-related deaths from 32% of all maternal deaths to 10% by 2015 (14).

In Ethiopia, only 6% of births are delivered in health facilities and, there is no significant difference in proportions of health facility delivery service utilization between EDHS 2000 and 2005 (13, 15). Skilled birth attendant and institutional delivery service utilization in Tigray Region is 11.6% as per the EDHS 2011 which is equivalent with the national level (10%) (12).

Hence, assessing and understanding the factors that determine the utilization of skilled birth attendant and institutional service delivery is crucial to enhance maternal health and improve the maternity services and thereby reduce maternal mortality given that the slow decline in the risk of maternal death in Ethiopia.

1.2 Rationale

Despite the efforts being made by the Government and other stakeholders to mitigate the problems and subsequent consequences posed by home delivery, studies in different parts of the country are showing that most Ethiopian women are giving birth at home and skill birth attendance remains low (12, 16).

To enhance utilization of health facilities and skilled birth attendant during delivery in the country, barriers to utilization of health facility during delivery among women need to be identified across all geographical regions. Little is known in the study area on current magnitude of utilization of maternity services in health facilities especially skilled birth attendant services and determinants for their utilization.

This study, therefore, aimed to assess extent of skilled birth attendant utilization and attempts to explore determinant factors that are assumed to be barriers to skilled birth attendant utilization among mothers who gave birth in the past 12 months in Raya Alamata District, Southern Zone, Tigray Regional State, Ethiopia. This information is important for informed decisions among stakeholders working in maternal and child health in the country in general and the study area in particular.

2. Literature review

2.1. Maternal mortality and skilled birth attendant

An African woman‟s chance of dying from pregnancy or childbirth is 1 in 16 over her lifetime, compared with 1 in 3,800 in developed countries (2). Sub-Saharan Africa had the highest Maternal Mortality Rate at 500 maternal deaths per 100 000 live births, while Eastern Asia had the lowest among Millennium Development Goal developing regions, at 37 maternal deaths per 100 000 live births (3). In both developing countries and United States more than 60% of maternal deaths occur in the postpartum period. In developing countries, 80% of postpartum deaths caused by obstetric factors occur within 1 week (17).

In the MDG framework, two indicators are proposed for monitoring progress towards the maternal health goal, namely, the maternal mortality ratio and the proportion of deliveries with a skilled health care provider. The need for access to skilled health care for pregnancy, birth and the postnatal period has been central to WHO‟s Making Pregnancy Safer Initiative (18).

Acquiring the support of skilled birth attendants to improve the management of pregnancy-related complications is an effective means to reduce maternal mortality. The WHO definition of „skilled birth attendant‟ refers to „people with midwifery skills (midwives, doctors and nurses with additional midwifery education) who have been trained to proficiency in the skills necessary to manage normal deliveries and the immediate postnatal period and diagnose, manage or refer obstetric complications‟ (19). This definition of skilled birth attendant clearly distinguishes between providers who are simply trained. “Trained” implies, but does not guarantee the acquisition of knowledge and competence with regard to midwifery skill. Therefore, trained or not adequately skilled community health worker, TBA, TTBA do not fall under the WHO accepted definition of skilled birth attendant (11).

According to WHO, maternal death is defined as death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes (19).

Focusing on TBAs, a number of conclusions can be drawn. The TBAs are generally older women with little schooling and are generally poor (20). Examining the results of the controlled trials of traditional birth attendant training, the authors of a Cochrane Review summarized the limited data available by stating that there is potential to reduce perinatal mortality through TBA training, especially when done in conjunction with building a stronger linkage to the health system (21, 22). The meta-analysis unfortunately tells us little about TBA training and maternal mortality which is a key issue for Safe Motherhood. Treating many of the conditions that result in the deaths of mothers, fetuses and many newborns such as obstructed labor, placental abruption, preeclampsia/eclampsia, intrapartum asphyxia usually require high levels of diagnostic skills, and treatments typically available in hospitals including, cesarean section and blood transfusion (22, 23). A study in India also noted that TBA appeared to have low knowledge regarding many life-threatening complications including excessive bleeding, prolonged labor, and vaginal tears (24).

Utilization of skilled delivery attendant is more likely to be similar or slightly higher than institutional delivery because births delivered at health facility are more likely to be delivered by trained health professional and births delivered at home are usually more likely to be delivered without assistance from health professional (12).

The proportion of deliveries assisted by SBA has become an indicator for measuring maternal mortality reduction, including the three quarter reduction called for by the fifth MDG. In almost all countries where health professionals attend more than 80% of deliveries, MMR is below 200 per 100,000 live births (11). Skilled attendance during labor, delivery and the early post-partum period could reduce an estimated 16 to 33 percent of deaths due to obstructed labor, haemorrhage, sepsis and eclampsia (25). But to make the achievement of the fifth MDG a reality, MMR will have to decrease at a much faster rate especially in sub-Saharan Africa, including Ethiopia, where the annual decline is staggering behind. This is due to increasing coverage of delivery by skilled birth attendants in developing regions has been slow (26, 27).

Nearly two thirds of deliveries in the developing world are attended by skilled health personnel and the proportion of deliveries attended by skilled health personnel rose from 55% in 1990 to 65% in 2010. The regions with the highest maternal mortality, sub-Saharan Africa and Southern Asia, are also those with the lowest coverage of births attended by skilled health personnel less than half (28).

The proportion of deaths due to Post Partum Hemorrhage that occurred in facilities is most likely due to the fact that over 90% of births take place at home, and women with PPH may not be arriving at health facility on time (16). For non-institutional births particularly, postnatal care enables detection of complications that may threaten the survival of the mother. In Ethiopia, where the largest proportions of births take place at home, postnatal care by health professionals is extremely low and uncommon (29).

2.2. Sociodemographic Determinants of use of skilled birth attendant

Amongst the maternal characteristics, education of women has been found to have the strongest association with the use of maternal skilled birth attendant and postpartum care (12, 30, 31). Studies from Nepal have shown that the mother‟s education being lower than primary level associated with a high prevalence of home delivery without help of SBAs (32). Another study from Bangladesh reveals that the uneducated women were less likely to have their delivery assisted by the Medically Trained Personnel (MTP) (33). Similar studies from Pakistan and Indonesia also show that women‟s education after adjusting for other factors remained to be a significant predictor of PNC (30, 34).

Partner's education also directly influenced significantly delivery practices in rural settings of Bangladesh; the higher the partner's education having higher chance of having delivery assisted by the MTPs (33). Maternal age is also another predictor, with age group of 15–24 years being more likely to deliver in health institutions than mothers with age group 35 and above (35, 36).

Previous studies from Bangladesh and Pakistan reveal that exposure to media and ownership of radio has significant impact in attending skilled personnel (30, 33). Ownership of radio was also significantly associated with the safe-delivery practices in rural Bangladesh (33). Those women who had radio had 1.7 times higher probability of having their deliveries assisted by the MTP.

Place of residence is the other factor that significantly influences the use of maternal skilled birth attendant; Rural women are generally less likely to give birth in health facility than their urban counterparts (31, 35-37). Mothers who were urban residents were 5 times more likely to give birth in health facilities than rural mothers (36).

The 2011 EDHS data show that most deliveries still occur at home and are assisted by medically unskilled birth attendants. Among all live births in the five years preceding the survey, almost 95% took place outside a health facility (12). The utilization of delivery and postnatal care services highly varies as a function of women‟s background characteristics (29).

Women‟s education appears to be positively and independently predict the use of delivery care services in Ethiopia (38). Similar studies in Sekela District, west Gojam and North Gondar zones had shown that mothers with educational level of secondary and above were more likely to give birth in health facilities than those with primary education and below (31, 36).

Mothers who were knowledgeable on ANC and delivery services were more likely to deliver in health institutions than mothers who were not knowledgeable (36). In addition, according to a study done in Gulele District, Addis Ababa, knowledge of mothers about maternal and child health care was significantly lower for women who wanted to deliver at home, compared to those who wanted to deliver at health institutions (39).

A study in India revealed that the use of postnatal care were higher among women who were secondary and above than those who were illiterate and a similar association was also found between the use of PNC with birth order, use of ANC during pregnancy and skilled birth attendant at delivery (40). Multivariate analysis of the influence of variables on utilization of postnatal care by mothers who delivered outside a health facility shows that residence and education are the only factors that significantly influence its use in Ethiopia (38).

2.3. History of past Obstetric characteristics

Antenatal care presents an opportunity to evaluate the mother‟s overall condition, like counseling on nutrition and healthy pregnancy/delivery behavior; and help women to select a trained birth attendant or institution to deliver their babies (41).

In Ethiopia, according to the EDHS 2011; 34% of women who gave birth in the five years preceding the survey received ANC from a skilled provider which is an improvement from 28 percent in 2005 (12, 13) . Recent studies in Ethiopia have revealed that ANC visit during last pregnancy was also found to be a strong predictor of institutional delivery service utilization (36, 42, 43) as mothers who had ANC visit during pregnancy were more likely to deliver in health facilities than those who did not have ANC visit during the last pregnancy.

A study in southern Ethiopia showed that when women feel their pregnancy is somewhat unwanted or untimely, the likelihood motivation to get ANC and professional delivery assistance was limited (44). Strong association was found between preparation for birth and seeking skilled provider at delivery (45). Women who were prepared for birth were more likely to give birth by a skilled provider than those who were not prepared.

Another important and independent predictor of utilization of delivery care services in Ethiopia is parity. Women with 2-4 and 5+ children are less likely to receive delivery care than parity one women (38). Prolonged labor was one of the strongest determinants to seek skilled birth, with women who had experienced prolonged labor being more likely to eventually deliver babies at a health facility than those who had not (46).

2.4. Reinforcing factors

Women‟s decision-making power is another factor that usually exists within the community that influences the use of skilled attendant at delivery (47). A Study conducted in rural Bangladesh demonstrates that influences from husbands and other relatives is sometimes very crucial in determining skilled birth attendant utilization by women, because the influences from these people may not always end by only encouraging or discouraging women to utilize the services, as in some instances these people might be the primary decision makers about skilled birth attendant utilization of women (48).

2.5. Enabling factors

Increased distance to facility was associated with lower use of skilled birth attendants (46). Studies in Nepal have shown the impact of poor road infrastructure and lack of public transport make access difficult, especially when there are complications (49). Poor women in rural areas have to walk more than an hour to reach the nearest health facility. As a result, poor women seek health care from less trained providers who are more accessible or they never seek any care (35). Women‟s economic factor also determines utilization of skilled attendant care. Even when formal fees are non-existent or low, poor women often face expenses of transport, drugs, and food or lodging for the women for delivering and other pregnancy related emergencies (7).

According to a study in Kenya, when women receive poor quality of care during institutional delivery this may discourage future institutional contacts and limit the intended impact on maternal and newborn mortality and morbidity (50).

2.6. Practice regarding child birth and postnatal care

World-wide, each year, some 60 million births occur at home, and the pregnancy outcomes appear considerably worse than births that occur in a medical facility (51). According to the EDHS 2011, less than 1% of births were assisted by a HEW, and 57% of births were assisted by a relative, or some other person. 28% of births were assisted by a traditional birth attendant, while 4% of births were delivered without any type of assistance (12).

Previous studies including DHS in Ethiopia have shown that childbirth most often takes place in home with different reasons being forwarded for its practice (13, 31, 39, 44). Having closer attention from family members, distance, poor roads, earlier experience, labor being short/urgent, no previous encounters, and influence from family members are some of the reasons. Studies from Kenya indicate similar reasons for preferring home delivery (50).

Conceptual framework

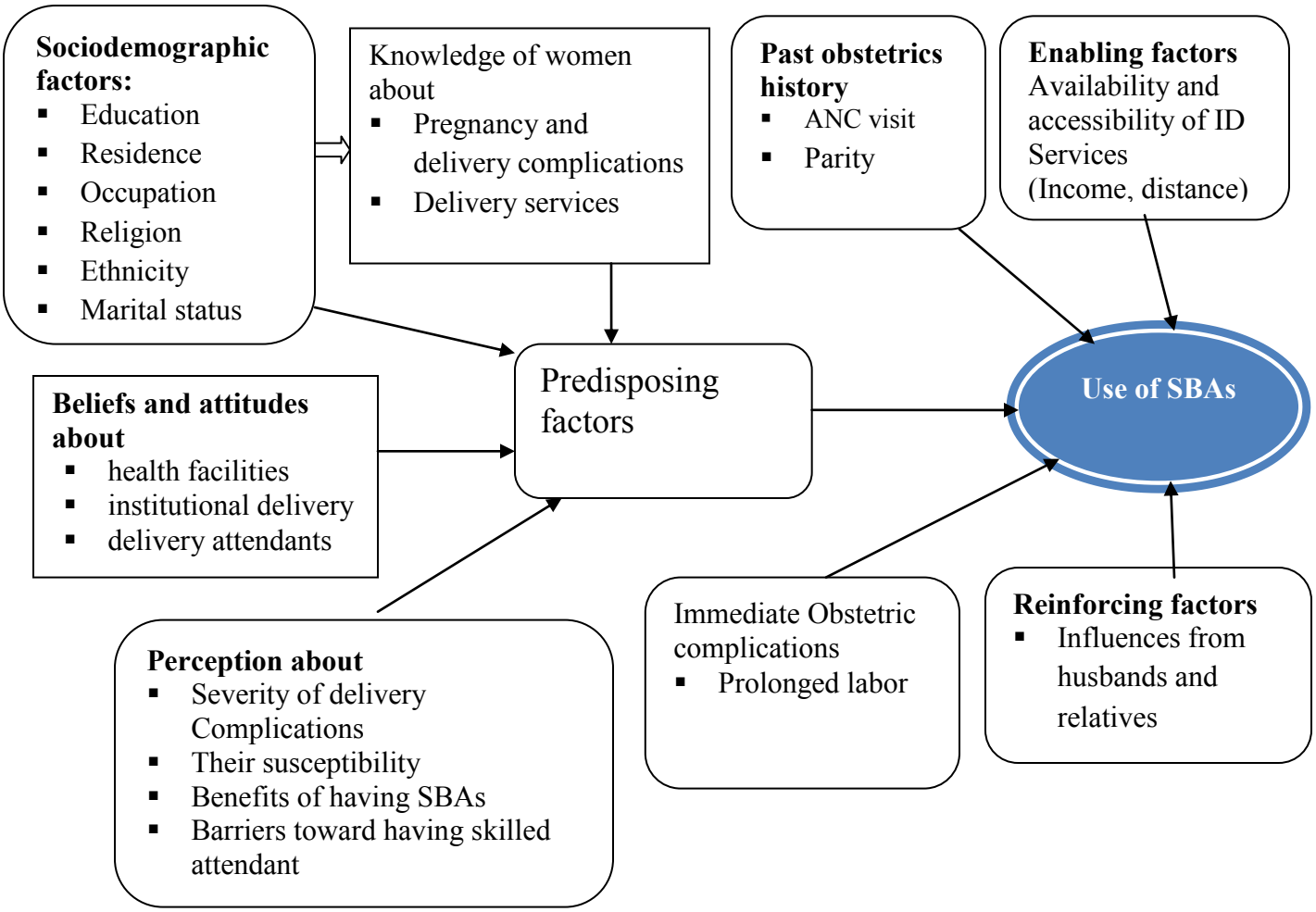

Figure 1: Schematic presentation of the framework adapted to identify determinants that affect skilled birth attendant and institutional delivery practices of mothers who gave birth in the past 12 months (68)

3. Objectives

3.1 General objective:

- To assess knowledge and practices with respect to pregnancy and child birth and to identify determinants of utilization of skilled birth attendant at birth among women who gave birth in the last 12 months preceding the study

3.2 Specific objectives:

- To describe skilled birth attendant utilization characteristics among women who gave birth in the last 12 months in the study area
- To assess knowledge with respect to pregnancy, child birth and delivery service among women who gave birth in the last 12 months
- To assess attitude related to pregnancy, child birth & delivery service among women who gave birth in the last 12 months
- To determine factors associated with the use of skill birth attendance among women who gave birth in the last 12 months.

4. Methodology

4.1 Study area

The study area was Raya Alamata District which is found 600km away from Addis Ababa and 185km south of Mekelle, the Capital City of the Tigray Region. The District had four urban kebeles (Tabias) and 15 rural tabias. Its population was estimated to be 141,695 based on census 2007 and the rural accounts for 70% of the population. Regarding the health infrastructure, the district had one hospital, six health centers and 13 health posts (52, 53). Quantitative and qualitative study was conducted from February to March 2012/2013.

4.2 Study design

Community based comparative cross-sectional study design was employed to assess the determinants of utilization of skilled birth attendant. A concurrent mixed method research combining quantitative and qualitative research approaches was used. The qualitative part aimed at complementing (augmenting) the finding of the quantitative survey and to elaborate more on the deep-rooted perceptions about skilled birth attendant. The qualitative data were collected immediately after the quantitative data were collected.

4.3 Population

4.3.1 Source population

For quantitative study; all women in the reproductive age group (15-49 years) in Alamata District constituted the source population.

4.3.2 Study population

Women who had given birth in the last 12 months, irrespective of the outcome of the birth were included for the quantitative assessment, whereas for the qualitative part all women in the reproductive age group (15-49 years) and men who became father in the past 12 months were included.

Inclusion criteria

- Women who gave birth within the last 12 months prior to the data collection, irrespective of the birth outcome and place of delivery

Exclusion criteria

- Women who are mentally and physically incapable of being interviewed
- Mothers who stayed for less than six month in the study area prior to the last delivery

4.4 Sample size and Sampling procedures

4.4.1 Sample size determination

For quantitative study: Sample size was determined using a formula for two population proportions by taking the level of significance to be 5% and the power 80%

$$n_1 = \frac{\left[Z_{\frac{\alpha}{2}} \sqrt{\left(1+\frac{1}{r}\right)\bar{P}(1-\bar{P})} + Z_{\beta} \sqrt{P_1(1-P_1) + \frac{P_2(1-P_2)}{r}} \right]^2}{(P_1 - P_2)^2}$$

To determine the sample size the following assumptions were considered.

Place of residence was considered as predictor factor for use of skilled birth attendant. Women were categorized into Urban and Rural (35). Place of residence gives the maximum sample size among other predictor variables such as having ANC follow up, educational status.

P_1 =Proportion of urban resident women who delivered by skilled birth attendant = 22.4%

P_2= Proportion of rural resident women who delivered by skilled birth attendant = 10.7%

r = ratio of n_1 to n_2 considered to be 1:2 and Confidence level = 95%

Based on the above assumptions design effect of 1.5 and 5% non response rate, 600 women who gave delivery in the past 12 months were requited for the study as eligible study participants. Using proportional allocation to the Rural and Urban; 400 samples were from rural kebeles.

For qualitative study

A total of four focus group discussions were conducted through a facilitator and two note-takers were engaged. Each focus group discussion was composed of 6-8 participants, typically gathered in a semi-circle around the Principal Investigator. Semi-structured open ended and non-directive focus group discussion (FGD) guide was designed based on the research questions and objectives which contain the issues to be addressed and specific areas of probing to facilitate and keep the discussion on track. It was flexibly guided and the Principal Investigator raised topics/issues for discussion so that participants share their views on the topic/issue independently.

4.4.2 Sampling procedures

For the quantitative part, multi-stage stratified sampling method with probability proportionate-to-size was employed. First, the District was stratified in to four urban kebeles (Tabias) and 15 rural Tabias; two from urban kebeles and four from the rural tabias were chosen by lottery method. The final sampling units were households with at least one birth in the 12 months preceding the survey. Out of the four sampled rural Tabias, a total of 406 samples were selected; of those, 105 from Tao, 110 from Selenwuha, 57 from Kulugeze Lemlem and 134 from Timuga. From the two sampled urban kebeles, a total of 174 women; 82 for kebele 02 and 92 for kebele 04 were allocated. In the selected Kebeles and tabias house-to-house visit was carried out to identify households with eligible women. Finally, Systematic sampling method was applied to select study participants.

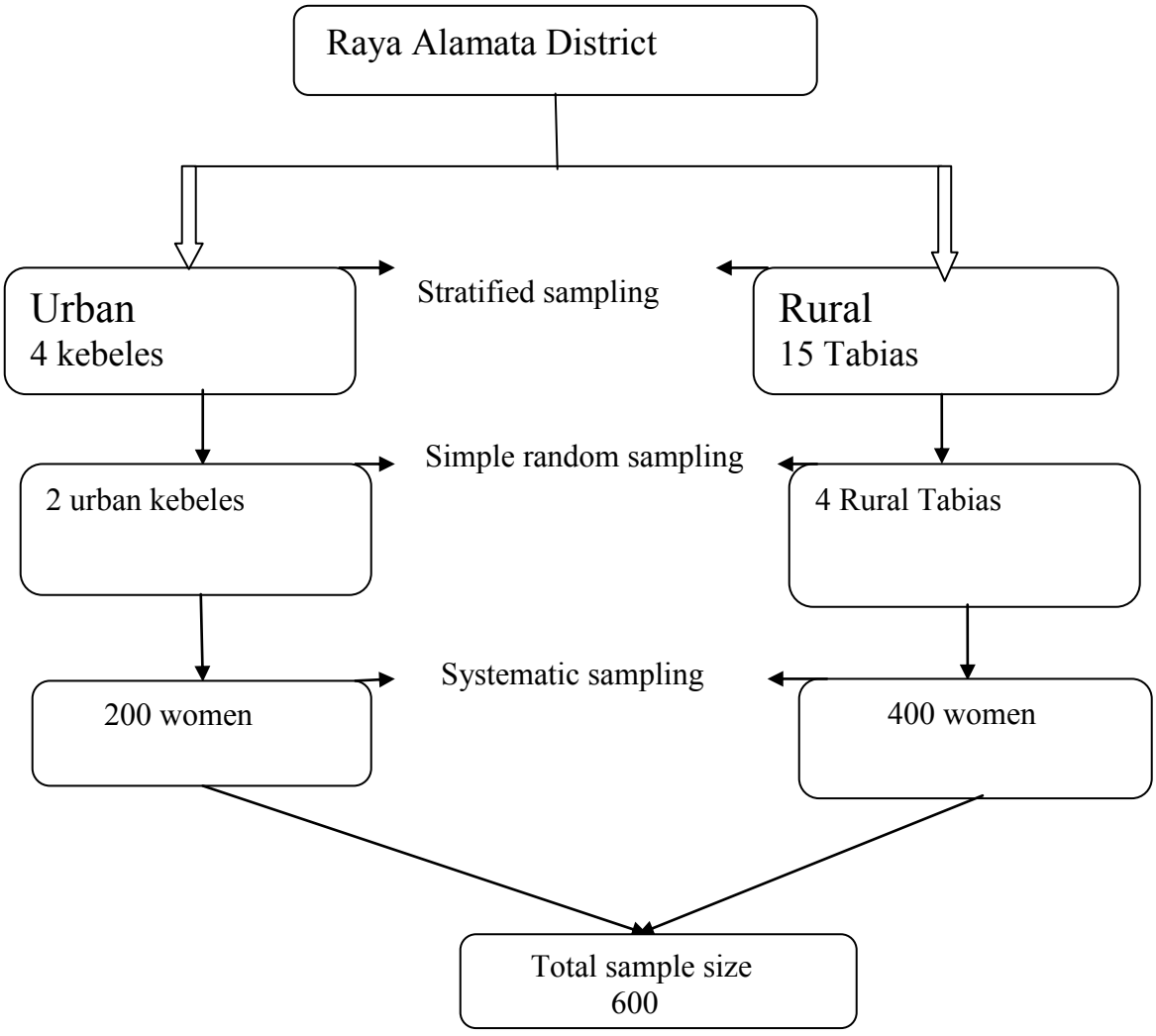

Figure 2: Schematic presentation of sampling frame for the study

For qualitative part

For the focus group discussions purposive sampling of study participants was made. In selecting each member of the FGD participant‟s age, educational status, occupation, and residential backgrounds were considered. The Principal Investigator and the supervisor facilitated the FGDs in accordance with the prepared guidelines.

The FGDs were conducted with two categories or groups of participants, namely women who delivered in the past 12 months prior to the study, men who fathered children one year of age and below. The women group was divided into two based on age. One group included women aged between 15 and 34, and the other above 35 years of age. Men participants were selected purposively irrespective of their age. Leaders as well as village chairpersons were excluded from the groups to reduce possible interference with the freedom of expression amongst participants.

4.5 Variables

4.5.1 Independent/explanatory variables

- Socioeconomic and demographic factors
  - Age, marital status, education, income
  - Travel time to the nearest health facility (within 30 minutes), and
  - Exposure to mass media (exposed to television or radio)
- Obstetric factors (parity, complications experienced (prolonged labor), history of stillbirth, ANC follow up)
- Husband‟s factors (occupation, education)
- Knowledge and attitude on key danger signs of pregnancy, labor/childbirth and delivery services

4.5.2 Dependent/outcome variable

- Use of Skilled Birth Attendant

4.6. Data collection procedures

4.6.1. For quantitative study

Data were collected through face-to-face interview using pre-tested structured questionnaire developed in English after reviewing relevant literatures. The questionnaire was translated into the local language, and to check for its consistency, back translated into English. Socioeconomic and demographic factors, obstetric factors (parity, complications experienced like prolonged labor, history of still birth), ANC follow up, husband factors (occupation, education), knowledge and attitude on key danger signs of pregnancy, and labor/childbirth were included as contents of the questionnaires.

Five data collectors were used to conduct the face-to-face interview and data collection process was supervised by one health officer and the Principal Investigator. Training was given to the data collectors and supervisors before the actual data collection regarding the aim of the study, data collection tool and procedures going through the questionnaires question by question. In addition, the training also focused on the art of interviewing and clarifying questions that are unclear to the respondents. Data collectors were peer interviewed to ensure their competence in the interview process.

4.6.2. For qualitative study

The Principal Investigator prepared semi-structured open ended and non-directive focus group discussion guide. The discussion guide was translated from the English version into the local language by the Principal Investigator. Then, another person back translated to English and compared with the original version to check for its consistency. The key issues discussed were the knowledge, perceptions and practices governing pregnancy, childbirth and delivery service. In addition, the discussion addressed the barriers for under utilization of skilled birth attendant, the importance of delivery in health facility and suggestions for improvement.

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4.7. Data quality management

The data collection tool was pre-tested on 15 similar women in the study area from randomly selected kebeles and tabias which were not included in the study before the initiation of the main study. Findings and experiences from the pre-test were utilized in modifying the data collection tool.

Supervision was conducted by the Principal Investigator and Supervisor. The supervision included observing how data collectors administered the questions to the respondents; checked some households to make sure that they were from the residence of the eligible women. The Principal investigator and Supervisor randomly revisited 5 % of respondents; to check whether some households were left out without visit or not by the data collectors. To ensure data quality, each data collector checked the questionnaire from each study participant for completeness on daily basis. The Supervisor and Principal Investigator reviewed each questionnaire daily and checked for completeness and further edition.

For the qualitative aspect, to ensure the quality, data were recorded to capture all the information and note was taken. Thereafter, the data were transcribed, typed and cleaned before analysis. Transcripts from audio tapes and notes from recorders/facilitators were compared, gaps filled, and a concise version was written out. Assertive and overtones of dominant participants were removed before analysis. FGD guide with probing questions was used to reduce error from memory lapse.

Data Entry and Cleaning

Each questionnaire was given a unique code by the Principal Investigator. The principal investigator prepared template and entered data using Epi-info version 3.5.1. Then, the entered data were cleaned for errors prior to data analysis. Frequencies were used to check for missed values and outliers during analysis. Any errors identified were corrected after revision of the original data using the code numbers given to the questionnaires.

4.8. Data Analysis procedures

For quantitative data

Data were cleaned for inconsistencies and missing values and analyzed using SPSS version 16.0 statistical software. Frequencies and Proportions were computed for description of the study population in relation to socio-demographic and other relevant variables (age, marital status, gravidity, parity). Statistical association was done by chi-square test for categorical variables.

Significance was determined using crude and adjusted odds ratios with 95% confidence intervals. To assess the association between the different predictor variables of skilled birth attendant utilization with the dependant variable, first bivariate relationships between each independent variable and outcome was investigated using a binary logistic regression model. Those independent variables found to be significant with p-value less than 0.05 at the bivariate level were included in a multivariate logistic regression model for each dependent variable to control for potential confounding variables. The analysis yielded standardized partial regression coefficients that estimate the direct effect of predictor variable on the dependent variable controlling for the effects of all other independent variables in the equation. The results were presented in the form of tables, figures and summary statistics.

Qualitative data analysis

The qualitative data obtained from participants‟ conversations were audio-taped, transcribed, translated and coded with Open Code version 3.6. Inductive content analysis was applied. The process of analysis proceeded with open coding and systematically coded segment by segment based on the research questions. Finally, the narrative qualitative information and the observation were organized and integrated according to emerging themes and concepts that were used to answer the research questions.

4.9. Operational definitions

Skilled attendant- is a professionally trained health worker having the essential midwifery skills to manage normal labour and delivery, recognize complications early and perform any essential interventions including early referral.

Safe delivery – is women who gave birth by assistance of skilled birth attendants in a health institution

Women's autonomy:-decision-making power of women on one„s own choice of delivery place.

Distance: - is measured in time taken to the nearest health facility on foot.

Reinforcing factors: are influences of people that encourage or discourage behavioral change.

Enabling factors: are factors that make it possible or convenient for the individuals to carry out utilization of skilled birth attendant

Gravidity:-total number of pregnancies a woman has regardless of pregnancy outcome.

Parity:-total number of deliveries that occur after 28 wks of gestational age.

Educational status: - refers to the level of education attended by the respondent during the time of survey.

Formal education: consists of primary, secondary and above educational attainment of respondents

Non-formal education: consists of unable to read and write, read and write only educational attainment of respondents

Predisposing factors: factors that exist prior and make susceptible or inclining so as to acquire some behavior like use of skilled birth attendant.

Knowledgeable: women were considered knowledgeable if they were aware of danger signs related to pregnancy and childbirth and advantages of delivery service, and use SBA if they scored above median of knowledge questions, and not knowledgeable if otherwise.

Favourable attitude: women were considered as having favorable attitude towards danger signs related to pregnancy and childbirth and advantages of delivery service, and use SBA if they scored above the median on attitude questions, and unfavourable if otherwise.

4.10. Ethical consideration

The proposal was approved by the Addis Ababa University, School of Public Health, and the College of Health Science Institutional Ethical Review Board. An official letter was written from the School of Public Health to Tigray Regional Health Bureau and Alamata Woreda Health and Administrative Offices to seek the essential cooperation.

During data collection, individual informed verbal consent was obtained from the study participants. Each respondent was informed about the objective of the study, procedures of selection and assurance of confidentiality moreover their names were not registered to minimize social desirability bias and enhance confidentiality. Individuals were free to withdraw from the interview at any time.

Permission to conduct FGDs in the community was sought from community leaders. Confidentiality with regard to their participation and anonymity with regard to their stored data was assured, and each participant was asked for his or her verbal consent to participate in FGDs. Permission to audio-record the discussions was also sought and obtained. Participants did not receive any monetary incentive for participating in the discussions and participation was solely voluntary.

The Principal Investigator prepared one page information in local language regarding danger signs during pregnancy, labor and childbirth, and about the importance of skilled birth attendants in managing these problems.

4.11. Dissemination and Utilization of the Result

The study is communicated to the School of Public Health, College of Health Sciences as partial fulfillment of Master"s Degree in Public Health. It will also be disseminated to the Woreda Health Office and other concerned governmental and non-governmental organizations. It will be sent for publication in peer reviewed journal and presentations shall be made in scientific conferences.

5. Results

5.1. Socio-demographic characteristics of the respondents

A total of 567 mothers who gave birth in the last 12 months were interviewed making a response rate of 94.5 %. The majority of the respondents were in the age range of 25-34 years (48%) making the mean age of (Standard deviation [SD]) 28.8 (± 7) years. In their ethnicity, 522 (92.1%) were Tigre followed by Amhara 41 (7.2%). Out of the total respondents, 440 (77.6%) were Orthodox followed by Muslim 113 (19.9%) (Table 1).

The majority, 553 (97.5%) of the mothers were married (rural 97.2% and 98.3% urban). Regarding the respondents‟ educational status, 232 (58.7%) of rural and 74 (43%) of the urban study subjects, and 240 (42.3%) of their husbands (201 (50.9%) rural and 39 (22.7%) urban) were unable to read and write. Four hundred ninety seven (87.7%) of the respondents were housewives (rural 92.9% and 75.6% urban), while 435 (76.7%) of the husbands were farmers (Table 1).

One hundred eighty two (46.1%) of rural respondents household had average monthly expenditure of between 501-999 ETB whereas 65 (37.8%) urban respondents household had 1000-1499 ETB average monthly expenditure. Regarding their means of communication, 337(59.5%) respondents had either radio or TV in their houses. One hundred sixty one (93.6%) urban respondents had to walk for less than 30 minutes on average while 271 (68.6%) rural participants had to walk for more than 30 minutes on average to reach the nearest health facility (Table 1).

Table 1: Socio demographic characteristics of the study participants by Residence, Alamata District, Southern Tigray, 2013 (n = 567)

Variables	Categories	Rural(n= 395)		Urban(n=172)		Total(n=567)	
		n	%	n	%	n	%
Age (years)	15-24	108	27.3	46	26.7	154	27.2
	25-34	182	46.1	90	52.3	272	48
	35 and above	105	26.6	36	20.9	141	24.9
Ethnicity	Tigre	365	92.4	157	91.3	522	92.1
	Amhara/Others†	30	7.6	15	8.7	45	7.9
Religion	Orthodox	302	76.5	138	80.2	440	77.6
	Muslim	88	22.3	25	14.5	113	19.9
	Protestant	5	1.3	9	5.2	14	2.5
Marital status	Married	384	97.2	169	98.3	553	97.5
	Single/divorced/widow	11	2.8	3	1.7	14	2.5
Mother's educational status	Illiterate	232	58.7	74	43	306	54
	Read and write	78	19.7	32	18.6	110	19.4
	Primary education	72	18.2	46	26.7	118	20.8
	Secondary and above	13	3.3	20	11.6	33	5.8
Husband's educational status	Illiterate	201	50.9	39	22.7	240	42.3
	Read and write	120	30.4	65	37.8	185	32.6
	Primary education	55	13.9	42	24.4	97	17.1
	Secondary and above	19	4.8	26	15.1	45	7.9
Mother's occupational status	House wife	367	92.9	130	75.6	497	87.7
	Government employee	4	1	23	13.4	27	4.8
	Merchant/Others*	24	6.1	19	11	43	7.6
Husband Occupational status	Farmer	344	87.1	91	52.9	435	76.7
	Employed**	9	2.3	33	19.1	42	7.4
	Merchant/Others***	42	10.6	48	27.9	90	15.9
Mass media	Radio	144	36.5	82	47.7	226	39.9
possession	Television	6	1.5	105	61	111	19.6
	Mobile phone	169	42.8	148	86	317	55.9
	None	185	46.8	15	8.7	200	35.3
Time taken to	≤ 30 minute	124	31.4	161	93.6	285	50.3
Nearby HF	>30 minute	271	68.6	11	6.4	282	49.7
Monthly average expenditure	≤500	44	11.1	8	4.7	52	9.2
	501-999	182	46.1	56	32.6	238	42
	1000-1499	112	28.4	65	37.8	177	31.2
	≥1500	57	14.4	43	25	100	17.6

*** Others (Daily labour, unemployed); **employed (governmental and private);

*others (daily labour); † (Oromo, Gamo), HF: Health Facility

5.2. Past obstetric characteristics of the respondents

Regarding age at first marriage 343 (60.6%) of the study subjects [Rural 258 (65.5%), Urban 85 (49.4)] were married before the age of eighteen. Three hundred twelve (79%) rural respondents were first pregnant before the age of 20 years compared to 105(61%) urban dwellers with mean age at first pregnancy 17.8 (SD ±2.6) and 19 (SD ± 2.8) respectively. The mean gravidity of the respondents (mean, ±SD) was 3.2 ± 2 for urban and 3.8 ± 2.2 for rural women. Concerning parity, the mean parity of participants was 3 ± 1.9 for urban compared to 3.6 ± 2.1 for rural mothers (Table 2).

One hundred fifty nine (92.4%) urban women and 360 (91.1%) of rural women reported that their last pregnancy was planned. Concerning birth preparedness 504 (88.9%) of respondents said that there was preparation for the last delivery [Urban 162 (94.2%), Rural 342 (86.6%). Out of the total respondents, 51(9%) had history of abortion and stillbirth 40 (7.1%) (Table 2).

Regarding the prenatal service utilization of the respondents, 325 (57.3%) had attended ANC service (urban 73.8% and rural 50.1%). Among those women who attended ANC the majority, 73 (57.5%) urban respondents had ANC visits of four and above while rural participants had 2-3 visits, 98 (49.5%). Out of the study subjects , 539 (95.1%) knew at least one advantage of the ANC follow up; of these, to follow maternal health status 411(72.5%), to follow fetal health status 391 (69%), knowing fetal positioning 304(53.6%) and to anticipate problems that can occur during delivery 223(39.3%) (Table 2).

Seventy five of the respondents [rural 58(17.7%) and urban 17 (12.7%)]. experienced at least one adverse pregnancy and child birth outcome previously (Table 2). Among the problems mentioned were bleeding 34(45.9%), prolonged labor 26(35.1%), retained placenta 21(28.4%) and others 7(9%). Out of the total study subjects 69(17.5%) rural and 18(10.5%) urban had visited health facility for postnatal natal care (Table 2). Reasons for PNC visit were bleeding 25(28.7%), retained placenta 22(25.3%), puerperal sepsis 11(12.6%), breast problems 11(12.6%) and others including post natal immunization 24(27.4%).

Table 2: Obstetric characteristics of respondents by residential area, Alamata District, Southern Tigray, 2013

Variables	Rural (n= 395)		Urban(n= 172)		Total (n=567)	
	n	%	n	%	n	%
Age at first marriage						
<18yrs	259	65.6	85	49.4	344	60.7
18 yrs & above	136	34.4	87	50.6	223	39.4
Age at first Pregnancy						
<20 yrs	312	79	105	61	417	73.5
20 yrs & above	83	21	67	39	150	26.5
Gravidity						
1	68	17.2	38	22.1	106	18.7
2-4	184	46.6	90	52.3	274	48.3
≥5	143	36.2	44	25.6	187	33
Parity						
1	77	19.5	43	25	120	21.2
2-4	196	49.6	92	53.5	288	50.8
≥5	122	30.9	37	21.5	159	28
Ever had history of abortion						
Yes	38	9.6	13	7.6	51	9
No	357	90.4	159	92.4	516	91
Ever had history of still birth						
Yes	29	7.3	11	6.4	40	7.1
No	366	92.7	161	93.6	527	92.9
Last pregnancy planed						
Yes	360	91.1	159	92.4	519	91.5
No	35	8.9	13	7.6	48	8.5
Birth preparation						
Yes	342	86.6	162	94.2	504	88.9
No	53	13.4	10	5.8	63	11.1
ANC visit during last pregnancy						
Yes	198	50.1	127	73.8	325	57.3
No	197	49.9	45	26.2	242	42.7
ANC frequency (n=198)						
one	33	16.7	12	9.4	45	13.8
Two to three	98	49.5	42	33.1	140	43.1
Four and above	67	33.8	73	57.5	140	43.1

Continued from Table 2

Place of last 12 month delivery						
Health facility	55	13.9	76	44.2	131	23.1
Home	340	86.1	96	55.8	436	76.9
Assistance during home delivery						
Family member	211	62.1	75	78.1	282	64.7
My mother	186	54.7	50	52.1	236	54.1
TBA (Untrained)	87	25.6	5	5.2	92	21.1
Others*	13	3.8	5	2.9	18	4.1
Duration of last labor						
< 12 hrs	311	78.7	123	71.5	434	76.5
12-24 hrs	77	19.5	44	25.6	121	21.3
> 24 hrs	7	1.8	5	2.9	12	2.1
PNC visit after last delivery						
Yes	71	18	26	15.1	97	17.1
No	324	82	146	84.9	470	82.9
Experience adverse pregnancy outcome						
Yes	58	17.7	21	15.7	79	17.1
No	269	82.3	113	84.3	382	82.9

* Health worker and No one

Institutional delivery service utilization

Regarding institutional delivery service utilization, 131 (23.1%) of the women gave their last birth at health institutions being attended by skilled birth attendant [Urban 76 (44.2%), 55 (13.9%) of the rural]. The majority of rural study subjects 340 (86.1%) delivered at home without assistance from skilled birth attendant compared to 96(55.8%) of urban study subjects (Figure 3).

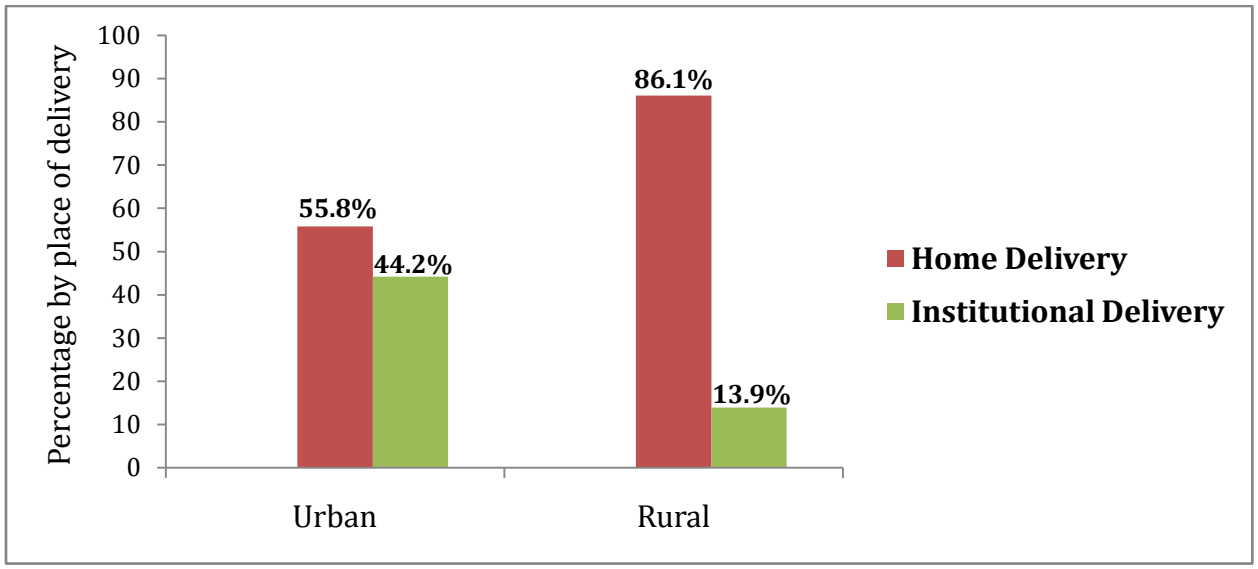

Figure 3: The proportion of births attended in health facilities and home among mothers in Alamata District, Southern Tigray, Northern Ethiopia, 2013

The majority of the respondents gave reasons for institutional delivery, 105 (80.2%) safe for the mother and child, 79 (60.3%) better outcomes from institutional delivery. In addition, the study subjects were informed to deliver at health institution during antennal care and by family members 59 (45%), presence of health institution close where they live 43 (32.6), and better service of institutional delivery 34 (25.6%) were noted to be further reasons. The respondents also reported that delivery at health institution lowers maternal exhaustion, facilitate the progress of labor by giving medication and avoid excessive bleeding which all are classified under Others 8 (6.1%) Figure (4).

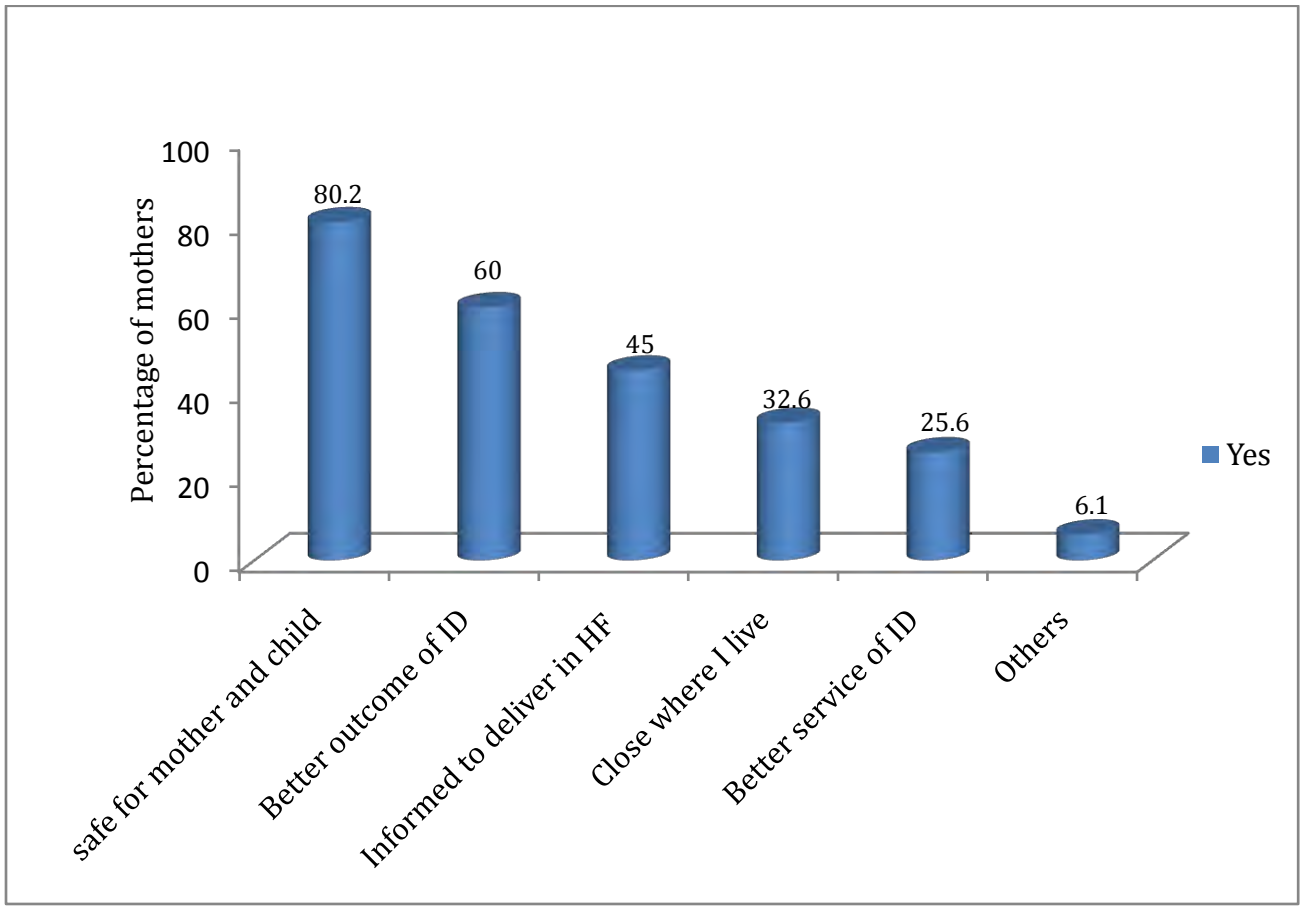

Figure 4: Reasons for skilled birth attendant during delivery among study subjects in Alamata District, southern Tigray, Ethiopia, 2013

N.B. ID: institutional delivery, HF: health facility

Among the mothers who delivered at home, 298 (68.3%) were assisted by family members and mothers, untrained TBAs 91 (20.9%) and no one or without any assistance 16 (3.7%). Mothers gave a variety of reasons for delivering at home. Of these, having closer attention from family members and relatives 318 (72.9%), urgent and smooth labor 252 (57.8%), feel more comfortable 157 (36%), delivering at home is my usual experience 118 (27%), were among the commonest (Figure 5).

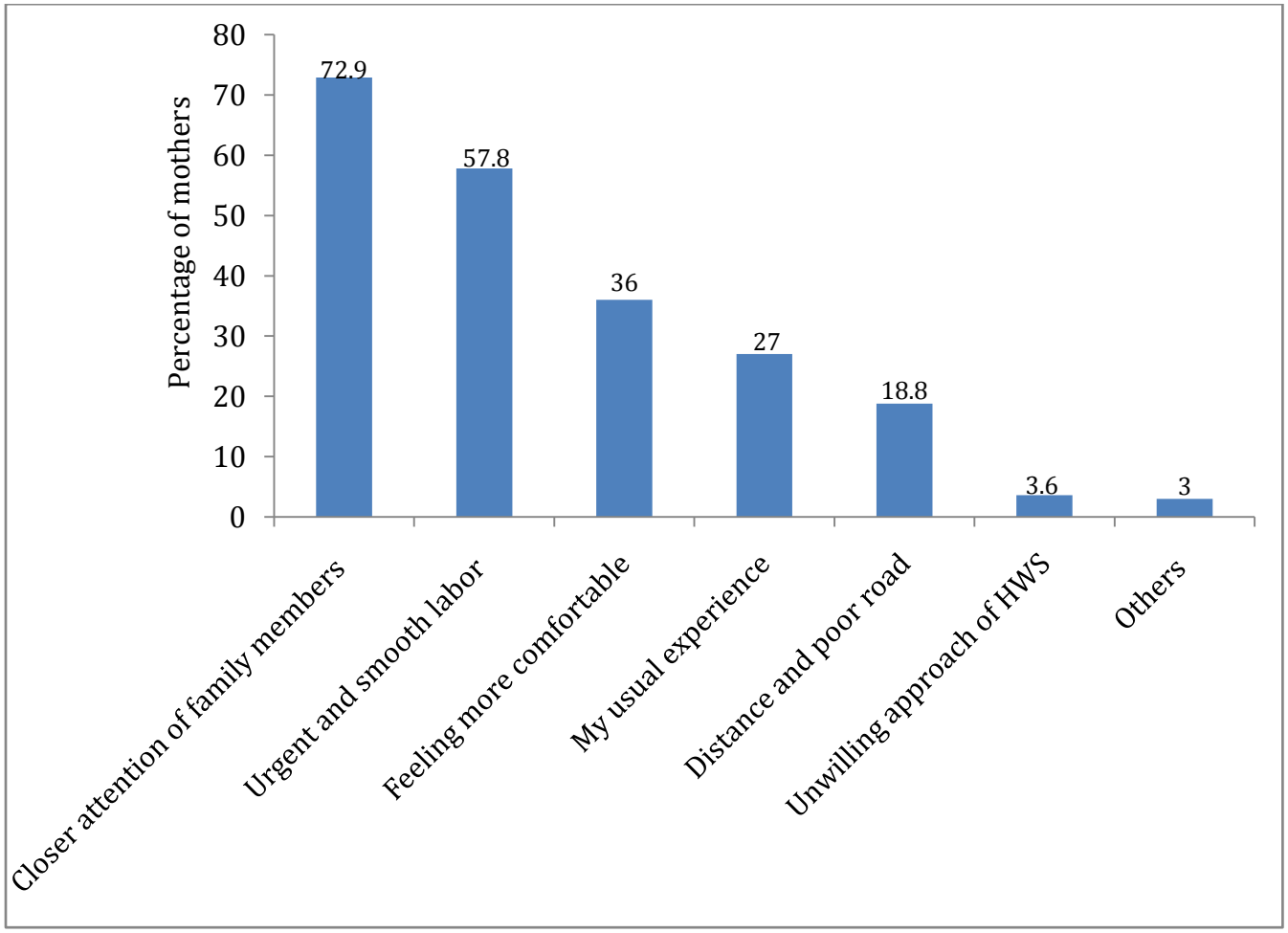

Figure 5: Reasons for home delivery among study subjects in Alamata District, Southern Tigray, Ethiopia, 2013

5.3. Knowledge and attitude about pregnancy, labor and delivery service

Ninety eight (57%) of urban and 193 (48.9%) of rural mothers scored more than the mean score on knowledge questions of danger signs related to pregnancy, labor and child birth, and also on advantages of delivery service. On the other hand, their attitudes towards danger signs of pregnancy, child birth and safe delivery service utilization, 141(82%) urban and 282(62.8%) rural study subjects showed favorable attitudes towards pregnancy, child birth and safe delivery service utilization (Table 3).

Table 3: Overall knowledge and attitude of the respondents (n = 567) by residential area among mothers in Alamata District, Southern Tigray, Ethiopia, 2013

Variable	Rural (n= 395) n (%)	Urban(n= 172) n (%)	Total (n=567) n (%)
General knowledge on danger of obstetrics problems related to pregnancy and child birth			
Not Knowledgeable	202(51.1)	74(43)	276(48.7)
Knowledgeable	193(48.9)	98(57)	291(51.3)
Over all respondents attitude on danger signs and delivery services			
Unfavorable	147(37.2)	31(18)	178(31.4)
Favorable	248(62.8)	141(82)	389(68.8)

Out of the total women who said, "Yes" regarding to the knowledge of danger signs of pregnancy related health problems, bleeding 290 (65.8%), severe headache 166 (37.7%), blurred vision 219 (49.7%), convulsion 112 (25.4%), loss of consciousness 140 (31.7%), severe abdominal pain 197 (44.7%) were mentioned (Table 4).

The majority 481 (84.8%) of the respondents knew at least one danger sign during child birth. Out of these, 413 (85.9%) mentioned vaginal bleeding, prolonged labor 357 (74.2%), retained placenta 349 (72.6) as the commonest mentioned signs. Regarding danger signs after delivery, the respondents cited retained placenta 451 (79.5%), bleeding 401 (70.7%), abdominal pain 306 (54%) as the commonest problems. Besides, the respondents mentioned the advantage of pregnancy and delivery services mainly as better health care for women 449 (79.2%) and newborn 377 (66.5%) (Table 4).

Table 4: Knowledge of respondents on pregnancy, labor and delivery service by place of residence, Alamata District, Southern Tigray, Ethiopia, 2013

Variable	Rural(n=395)		Urban(n=172)		Total(n=567)	
	n	%	n	%	n	%
Knowledge on obstetric problems that can occur during pregnancy (n=441)						
Vaginal bleeding	200	66.7	90	63.8	290	65.8
Blurred vision	149	49.7	70	49.6	219	49.7
Severe abdominal pain	134	44.7	63	44.7	197	44.7
Severe headache	114	38	52	7.1	166	37.7
Loss of consciousness	93	31	47	33.3	140	31.7
Convulsion	74	24.7	38	27	112	25.4
Others	18	6	7	5	25	5.7
Knowledge on danger signs related to labor and child birth (n=481)						
Severe vaginal bleeding	291	87.1	122	83	413	85.9
Prolonged Labor (>12 hours)	243	72.8	114	77.6	357	74.2
Retained placenta	234	70.1	115	78.2	349	72.6
Loss of consciousness	89	26.6	40	27.2	129	26.8
Convulsion	77	23.1	30	20.4	107	22.2
Knowledge on danger signs that occurs after delivery (n=567)						
Retained placenta	313	79.2	130	75.6	443	78.1
Excessive bleeding	280	70.9	121	70.3	401	70.7
Abdominal pain	209	52.9	97	56.4	306	54
Foul smelling vaginal discharge	130	32.9	46	26.7	176	31
Severe headache/others	83	21	43	25	126	22.2
Advantages of pregnancy and delivery related services (n=567)						
Better health care for the women	318	80.5	131	76.2	449	79.2
Better health care for the newborn	271	68.6	106	61.6	377	66.5
Early detection of health Problems	203	51.4	90	52.3	293	51.7
Anticipating problems	156	39.5	92	53.5	248	43.7
Others	7	1.8	4	2.3	11	1.9

NB: Multiple responses were possible

Five hundred fifty two respondents (97.4%) perceived that the ability of delivery attendants during labor and child birth between skilled birth attendant and unskilled birth attendant such as TBAs was not similar. The study subjects in urban as well as rural residents had favourable attitude towards danger signs of pregnancy and child birth. They perceived these danger signs can endanger the life of any pregnant women 458 (80.8%) and to myself, 486 (85.7%). Moreover, the majority of respondents had positive outlook of being attended by a skilled delivery attendant as beneficial to both mother 513 (90.5) and newborn 508 (89.6). Regarding respondents‟ perception towards health professionals‟ respect and support, almost half believed that they didn‟t get respect from the health facility service. More than half of study subjects disagreed to delivery bed in labor ward as shameful (Table 5).

Table 5: Attitude of the respondents among mothers on health problems related to pregnancy, child birth and safe delivery service in Alamata district, Southern Tigray, Ethiopia, 2013 (n = 567)

Attitude statements	Agree n (%)	Neutral n (%)	Disagree n (%)
Any pregnant and laboring women are susceptible to face delivery complications.	458(80.8)	15(2.6)	94(16.6)
Like any pregnant and laboring women, I am susceptible to face delivery complications.	486(85.7)	8(1.4)	73(12.9)
Delivery complications can be severe and hazardous to my wellbeing.	467(82.4)	21(3.7)	79(13.9)
Women do not go to health facility for delivery because the health workers do not treat them respectfully	279(49.2)	62(10.9)	226(39.9)
Delivery complications can be severe and hazardous to the newborn.	468(82.5)	17(3)	82(14.5)
It is very shameful to deliver on delivery bed in labor ward	208(36.7)	29(5.1)	330(58.2)
Being attended by a skilled delivery attendant is beneficial to my well being	513(90.5)	34(6)	20(3.5)
Being attended by a skilled delivery attendant is beneficial to the newborns wellbeing.	508(89.6)	36(6.3)	23(4.1)

Regarding decision on place of delivery, majority of the respondents reported the decision was made jointly between couples (urban 107 (62.2%) and rural 198 (50.1)). Preference of mothers about delivery place during their last pregnancy, 367 (64.7%) preferred to deliver at home, 185 (32.6 %) preferred to give birth in health facilities with the assistance of skilled professionals. Similarly, 306(54%) of their husbands preferred their wife to deliver at their own home, and 256 (45.1%) preferred their wives to deliver in health facilities with the assistance of skilled birth attendant. The majority, 356 (62.8%) of the family members and almost half of 280 (49.4%) of the community preferred mothers to deliver at home during their last pregnancy (Table 6).

Table 6: Preference of the respondents, their husband, family members and the community about place and attendant of delivery during their last pregnancy in Alamata District, Southern Tigray, Ethiopia, 2013

Variables	Rural(n= 395)		Urban(n= 172)		Total(n=567)	
	n	%	n	%	n	%
Final decision maker about place of delivery						
Myself	146	37	51	29.7	197	34.7
My husband	37	9.4	10	5.8	47	8.3
Both of us	198	50.1	107	62.2	305	53.8
Others	14	3.5	4	2.3	18	3.2
Preference of your mother about place delivery						
Home delivery	254	64.3	53	30.8	307	54.1
Institutional delivery	132	33.4	113	64.7	245	43.2
I don't know	9	2.3	6	3.5	15	2.6
Preference of your mother about attendant of delivery						
SBA	132	34.2	113	65.7	245	43.2
Relatives	228	89.8	45	84.9	273	88.9
Others	26	10.2	8	4.6	34	11
Preference of your husband about place of delivery						
Home	227	57.5	79	45.9	306	54
Institutional	164	41.5	92	53.3	256	45.1
I don't know	4	1	1	0.5	5	0.9
Preference of your husband about attendant of delivery						
SBA	164	41.9	92	53.8	256	45.6
Relatives	190	83.7	69	87.3	259	84.6
Others	37	16.7	10	12.7	48	15.7
Preference of other relatives about place of delivery						
Home delivery	261	66.1	95	55.2	356	62.8
Institutional delivery	127	32.2	74	43	201	35.4
I don't know	7	1.8	3	1.7	10	1.8
Preference of the community about place of delivery						
Home delivery	225	57	57	33.1	282	49.7
Institutional delivery	170	43	115	66.9	285	50.3

Majority, 338 (77.5%) of the women who gave birth at home for the last delivery preferred health institution as future place of delivery. The reasons reported were faced poor outcome from home delivery 171 (50.6%), fear of HIV infection during home delivery 157 (46.2%), and against my intention that I delivered at home 224 (66.3%). On the other hand, 98 (22.5%) of study subjects preferred home as future preference. My usual practice 87 (88.8%), deliveries can be handled at home if the labor is smooth 24 (24.5%) and better outcome at home delivery ten (10.2%).

Concerning respondents perceived barriers to health facility delivery were lack of awareness 496 (87.5%), transportation problem 252 (44.4%), health facility far away 233 (41.1%) and others such as lack of money and unwilling behaviors of health professionals 64(11.3%).

5.4. Satisfaction of study participants who delivered in health facilities during the past delivery

Regarding mothers‟ satisfactions on delivery service among those who delivered in health institution during the last delivery, 122(93.1%) respondents were satisfied on overall delivery service of health institutions. Of all satisfaction levels, Confidentiality and trust of health provider 128 (97.7%) and availability of supplies and equipment 128 (97.7%) were relatively higher among the respondents while health worker support, privacy and respect 123(93.9%) and examination area cleanness 125(95.4%) were relatively the least (Table 7).

Table 7: Client satisfaction to institutional delivery service during the last delivery in Alamata District, southern Tigray, 2013

Variables	Satisfied n (%)	Dissatisfied n (%)
Over all client satisfaction in the service	122(93.1)	9(6.9)
Confidentiality and trust of health provider	128(97.7)	3(2.3)
Availability of supplies and equipment	128(97.7)	3(2.3)
Waiting time to see health worker	126(96.2)	5(3.8)
professional competency and skill of the health worker(s)	126(96.2)	5(3.8)
Examination area cleanness and comfort	125(95.4)	6(4.6)
Support, privacy and respect offered by the provider	123(93.9)	8(6.1)

5.5. Determinants of skilled birth attendant utilization

5.5.1. Socio-demographic factors associated with utilization of skilled delivery attendant

The bivariate analysis revealed that women from urban areas had 4.9 higher odds of using skilled birth attendants at delivery compared to the rural women (OR=4.9, 95%CI: 3.2-7.4) (Table 10). Regarding women"s age, mothers with age group of 15–24 years and 25-34 were 6.03 and 3.9 times more likely to deliver in health institutions than mothers with age group 35 and above (OR=6.03, 95% CI: 3.0-12.1) and (OR=3.9, 95%CI: 2.7-7.0) respectively (Table 10). The odds of using skilled birth attendants at delivery for urban women the age group 15-24 years were 10.3 times higher than the 35 and above years age group (OR=10.3, 95%CI: 3.5-30.1) while rural women were 4.8 times more likely to use skilled birth attendants from the same age group (OR= 4.8, 95%CI: 1.7-13.3) (Table 8 and 9).

Women with formal education had 8 times higher odds of delivering with assistance from skilled birth attendant compared to women with no formal education in the district (OR=8.1, 95%CI: 5.2-12.4) (Table 10). The odds of delivering with skilled birth attendants were 10.2 for the rural women with formal education (OR= 10.2, 95%CI: 5.4-18.9) compared to no formal education while the odds were 5.2 for the urban women (OR=5.2, 95%CI: 2.7-10.1). Similarly, women whose husbands had formal education had 4.4 times higher odds of delivering with skilled assistance compared to the women whose husbands had no formal education (OR=4.4, 95%CI: 2.9-6.7) (Table 10). Rural women whose husbands had formal education (OR=3.7, 95%CI: 2-6.7) were more likely to receive skilled birth attendants at delivery compared to their urban counterpart (OR= 3.3, 95%CI: 1.8-6.3) (Table 8 and 9).

Rural households who possess radio were two times more likely to utilize skilled birth attendants than households who did not have radio (OR=2, 95%CI=1.1-3.6) whereas it has no association in urban residents (Table 8 and 9). Out of the total respondents, households having monthly average expenditure of 1500 ETB and above were 2.3 times more likely to utilize the health facility delivery service with skilled birth attendant than those with monthly expenditure less than 500ETB (OR=2.3, 95%CI=1.04-4.9) (Table 10).

In addition, maternal occupation and husband‟s occupation were also factors found to be significantly associated with skilled birth attendant utilization (OR=3.9, 95%CI: 2.3-6.5) and (OR=3.2, 95%CI: 1.7-6.0) in the District (Table 10). The odds of using delivery assistance from skilled birth attendant were 4.8 times higher among rural women whose occupation were governmental and merchants as compared to housewives (OR=4.9, 95%CI=2.1-10.8) whereas it was not significant for urban respondents (Table 8 and 9).

Women who were living in areas less than 30 minute walking distance were 4.4 more likely to utilize health service with (OR=4.4, 95%CI: 2.8-6.8) in the district (Table 10). Moreover, time taken to nearby health facility was also significantly associated with skilled birth attendant (OR=2.6, 95%CI: 1.5-4.7) in rural study subjects while it was not significant for urban respondents (Table 9).

5.5.2. Obstetric and related determinants of skilled birth attendant

Among the obstetric characteristics, women‟s parity, ANC follow up and age at first pregnancy were found to be significantly associated with skilled birth attendant whereas history of abortion, history of still birth, experience of adverse pregnancy outcome, last pregnancy plan status and birth preparedness were not significantly associated with skilled birth attendant.

The results showed mothers with 1-3 parity had almost five times higher odds of receiving assistance from skilled birth attendants at delivery compared to the women with more than four births (OR=4.7, 95%CI: 2.9-7.6) (Table 10). Rural respondents who had 1-3 parity were 5.5 times (OR=5.5, 95%CI: 2.6-11.6) more likely to use skilled birth attendant as compared to urban (OR=3.3, 95%CI: 1.6-6.7) (Table 8 and 9).

The likelihood of attending skilled birth attendant during delivery was 7.7 higher among mothers who had at least one ANC visit during the last pregnancy (OR=7.7, 95%CI: 4.4-13.5) (Table 10). Rural women who attended ANC were more than seven times more likely to use skilled birth attendant (OR=7.4, 95%CI: 3.4-16.0) as compared to their urban counterpart (OR=5.3, 95%CI: 2.312.3) (Table 8 and 9).

Mothers who were knowledgeable on pregnancy, child birth and delivery services were 3.6 times more likely to attend skilled birth attendants in health institutions than mothers who were not knowledgeable (OR=3.6, 95%CI: 2.3-5.5)) in the district. Similarly, attitudes towards danger health problem related to pregnancy, childbirth and safe delivery utilization has significant association with skilled birth attendant utilization (OR=3.64, 95% CI: 2.1-6.2) (Table 10).

Out of the rural study subjects, those women who have favorable attitude utilized the service 5.8 times more than those who have unfavorable attitude (OR=5.8, 95%CI; 2.4-13.9) and mothers who were knowledgeable were five times more likely to attend skilled birth attendant than mothers who were not knowledgeable (OR=5.1, 95%CI: 2.6-10.3) (Table 9). Besides, in urban study subjects on danger signs pregnancy, child birth and delivery services were also associated with skilled birth attendant utilization when compared to not knowledgeable (OR=2.6, 95%CI: 1.4-4.9). However, the attitude towards danger signs pregnancy, child birth and delivery services were not significant in urban residents (Table 8).

Table 8: Determinants of the use of SBAs among urban mothers who gave birth in the past 12 months in Alamata District, Southern Tigray, Ethiopia, 2013 (n=172)

Variables	Skilled birth attendant		COR (95%CI)	AOR 95% CI
	Yes	No		
	n	n		
Age at interview				
15-24	31	15	**10.3(3.5-30.2) *** **	**6.01(1.9-19.5) ***
25-34	39	51	**3.8(1.4-10.1)**	2.7(0.9-7.9)
35 and above	6	30	1	1
Maternal education				
No formal education	31	75	1	1
Formal education	45	21	**5.2(2.7-10.1) *** **	**4.1(1.9-8.7) ** **
Husband education				1
No formal education	34	70	1	1
Formal education	42	26	**3.3(1.8-6.3)**	1.3(0.5-3.2)
Parity				
1-3	62	55	**3.3(1.6-6.7)**	0.5(0.01-59.9)
4 and above	14	41	1	1
ANC visit				
Yes	68	59	**5.3(2.3-12.3) *** **	**4.03(1.5-10.6) ***
No	8	37	1	1
Who decides				
Myself	11	40	1	1
Husband/others†	4	10	1.5(0.4-5.5)	1.3(0.3-5.9)
Both of us	61	46	**4.8(2.2-10.4) *** **	**3.8(1.6-9.1) ***
Knowledge				
Knowledgeable	53	45	**2.6(1.4-4.9)**	1.8(0.9-3.9)
Not knowledgeable	23	51	1	1

** P < 0.001, *P< 0.01 ***P<0.001

† mother, mother –in- law

Table 9: Determinants of the use of SBAs among rural mothers who gave birth in the past 12 months in Alamata District, Southern Tigray, Ethiopia, 2013 (n=395)

Variables	Skilled birth attendant		COR (95%CI)	AOR 95% CI
	Yes	No		
Age at interview				
15-24	21	87	**4.8(1.7-13.3)** **	0.9(0.2-3.5)
25-34	29	153	**3.8(1.4-10.1)** **	1.6(0.4-5.6)
35 and above	5	100	1	1
Maternal education				
No formal education	20	290	1	1
Formal education	35	50	**10.2(5.4-18.9)** **	**5.7(2.8-11.7)****
Husband education				
No formal education	33	288	1	1
Formal education	22	52	**3.7(2.0-6.8)** **	1.2(0.5-2.9)
Maternal occupation				
Housewife	44	323	1	1
Governmental/others†	11	17	**4.8(2.1-10.8)**	0.9(0.3-3.1)
Own radio				
Yes	28	116	**2.0(1.1-3.6)**	1.5(0.7-3.2)
No	27	224	1	1
Time taken to nearby health facility				
≤30minute	28	96	**2.6(1.5-4.7)** **	**2.2(1.1-4.6)** *
≥30minute	27	244	1	1
Parity				
1-3	46	164	**5.5(2.6-11.6)** **	**2.9(1.2-6.8)** *
4 and above	9	176	1	1
ANC visit				
Yes	47	151	**7.4(3.4-16.0)** **	**4.9(2.0-11.7)** **
No	8	189	1	1
Knowledge				
Knowledgeable	44	149	**5.1(2.6-10.3)** **	**4.7(2.1-10.5)** **
Not knowledgeable	11	191	1	1
Attitude				
Favorable	49	199	**5.8(2.4-13.9)** **	**3.3(1.2-8.9)** *
Unfavorable	6	141	1	1

†others (merchants, daily labor), ** P < 0.001, *P< 0.05

5.5.3. **Multivariate analysis on determinants of skilled birth attendant utilization**

The result of multivariate regression analysis showed that maternal age at interview, residence, maternal educational status, ANC visit during the last pregnancy, final decision maker about place of delivery and knowledge and attitude related to danger signs of pregnancy and child birth were found to be significantly associated with skilled birth attendant utilization as clearly depicted on table (Table 10).

Maternal education and ANC visit were found to have significant association with utilization of skilled birth attendant for both urban and rural study subjects in separate multiple logistic regressions. Besides age at interview and final decision maker were significant for urban respondents. Regarding the rural study subjects; parity, time taken to nearby health center, knowledge and attitude on danger signs of pregnancy, child birth and delivery services were important significant variables after adjustment in addition to maternal education and ANC (Table 8 and 9).

Mothers who live in urban were almost two times more likely to be assisted by skilled birth attendant during delivery (AOR=2.2, 95% CI; 1.2-4.0). Mothers in 15-24 years age group during the interview were 4.8 times (AOR = 4.8, 95%CI: 2.0-11.6, 23.78) more likely to be assisted by skilled birth attendant than mothers more than 35 and above (Table 10). Besides, age at interview had also stastically significant association with utilization of SBAs, younger mothers were six times more likely to use in urban respondents (AOR=6.01, CI: 95%(1.9-19.5) (Table 8).

Mothers with formal education (AOR=5.2, 95% CI=3.0-8.8) had a 5.2 times higher to be attended by skilled birth assistants than those who had no formal education (Table 10). On separate multiple logistic regression by residence, rural women who had formal education were more than five times more likely to use SBAs (AOR=5.7, 95% CI: 2.8-11.7), while urban counterparts were 4.1 times (AOR=4.1, 95% CI: 1.-8.7) more likely to be assisted by skilled birth attendants (Table 8 and 9).

Parity was also another important factor which was associated with skilled birth attendant utilization for rural study subjects (AOR=2.9, 95%CI: 1.2-6.8) (Table 10). Mothers who had ANC visit were 3.8 times more likely to be assisted by skilled birth attendants than women who did not have ANC visit in the district (AOR=3.8, 95% CI=2-7.3) (Table 10). Furthermore ANC was also significant predictor for use of skilled birth attendant in both urban and rural residents. Rural mothers who had ANC follow up were almost five times more likely to delivered with assistance of skilled birth attendant (AOR=4.9, 95%CI: 2.0-11.7), whereas it was four times in urban study subjects (AOR=4.03, 95%CI: 1.5-10.6) (Table 8 and 9).

In addition, mothers who were knowledgeable and having favorable attitude were 4.7 (AOR=4.7 95% CI: 2.1-10.5) and 3.3 (AOR=3.3, 95% CI: 1.2-8.9) respectively times more likely to be attended by skilled birth attendants in rural areas. On the other hand, knowledge was not statistically significant for urban residents on multivariate analysis (Table 8 and 9).

Regarding final decision making about place of delivery; mothers who decided jointly were 3.3 times more higher of utilizing of skilled birth attendants during delivery when compared to self decision making in the district (AOR=3.3, 95%CI: 1.9-6.1) (Table 10). Moreover, in urban study subjects mothers who finally decided jointly were almost four times more likely to utilize skilled birth attendants during delivery (AOR=3.8, 95%CI: 1.6-9.1) while it was not statistically significant in rural study subjects (Table 8 and 9).

Table 10: Determinants of the use of SBAs among women who gave birth in the past 12 months in Alamata District, Southern Tigray, Ethiopia, 2013

Variables	Skilled birth attendant		COR (95%CI)	AOR 95% CI
	Yes	No		
Residence				
Rural	55	340	**1**	1
Urban	76	96	**4.9(3.2-7.4)** ***	**2.2(1.2-4.0)** *
Age at interview				
15-24	52	102	**6.0(3.0-12.1)** ***	**4.8(2-11.6)** **
25-34	68	204	**3.9(2.0-7.7)**	**3.8(1.7-8.6)** **
35 and above	11	130	**1**	1
Maternal education				
No formal education	51	365	**1**	1
Formal education	80	71	**8.1(5.2-12.4)** ***	**5.2(3.0-8.8)** ***
Husband education				
No formal education	67	358	**1**	1
Formal education	64	78	**4.4(2.9-6.7)** ***	1.7(0.9-3.3)
Maternal occupation				
Housewife	97	400	**1**	1
Governmental/others	34	36	**3.9(2.3-6.5)** ***	0.8(0.3-1.8)
Husband occupation				
Farmer	81	351	**1**	1
Employed††	19	26	**3.2(1.7-6.0)** ***	0.7(0.3-1.9)
Merchant/Others	31	59	**2.3(1.4-3.7)** **	0.5(0.2-1.06)
Time taken to nearby health facility				
≤30minute	100	185	**4.4(2.8-6.8)**	1.9(0.9-3.6)
>30minute	31	251	1	1
Monthly expenditure (in birr)				
≤500	11	41	1	1
501-999	37	201	0.7(0.3-1.5)	0.9(0.4-2.3)
1000-1499	45	132	1.3(0.6-2.7)	1.3(0.5-3.6)
≥1500	38	62	**2.3(1.01-4.9)** *	2.3(0.8-6.6)
Age at first pregnancy				
<20 years	86	331	1	1
≥20 years	45	105	**1.7(1.1-2.5)** ***	0.9(0.5-1.7)
Parity				
1-3	108	219	**4.7(2.9-7.6)** **	1.1(0.3-5.6)
4 and above	23	217	1	1

Continued from Table: 10

ANC visit				
Yes	115	210	**7.7(4.4-13.5)** ***	**3.8(2.0-7.3)** ***
No	16	226	1	1
Overall Knowledge about obstetric complications				
Knowledgeable	97	194	**3.6(2.3-5.5)** ***	**3.0(1.7-5.1)** ***
Not knowledgeable	34	242	1	1
Overall Attitude respondents				
Favorable	113	276	**3.6(2.1-6.2)** ***	**2.6(1.3-5.1)** **
Unfavorable	18	160	1	1
Who decides				
Myself	25	172	1	1
Husband/others	10	55	1.3(0.6-2.8)	1.3(0.3-3.4)
Both of us	96	209	**3.2(1.9-5.1)** ***	**3.3(1.9-6.1)** ***

†others (merchants, daily labor), ††: both governmental and private employee

***P < 0.001, *P< 0.05, **P < 0.01

Qualitative part

Different categories were developed according to the content of the FGDs. Main categories of the FGDs were**,** knowledge and perception on pregnancy and childbirth, reasons for home delivery, religious and traditional factors, quality of care. The main theme developed was factors/reasons associated to under utilization of skilled birth attendants during delivery. Many codes were grouped into each category by making the categories flexible (Table 11).

Table 11: The theme, categories and codes as identified from the qualitative data

Theme: Factors/reasons associated to under utilization of skilled birth attendants during delivery				
Categories	1-knowledge and perception on pregnancy and childbirth	2-Reasons for home delivery	3-Religious and traditional factors	4-Quality of service
Codes	Lack of awareness	Support	God knows	Privacy
	Misconception	Closer relative attention	Saint Mary knows	Bad facial expression
	Privacy	Distance	TBAs	Carelessness
	Shameful	Transport	Influence	Impatience
				Lack of equipment

1-knowledge and perception on pregnancy and childbirth

Concerning the knowledge of danger signs, the most frequently mentioned adverse pregnancy outcome and child birth in this study are bleeding, prolonged labor and retained placenta. Informants elucidated that lack of awareness and knowledge are the key barriers making people to fail to attain professional service during delivery. Among the informants a man aged 39 further describes as follow:

> *"I think that lack of awareness among mothers and husbands is the main reason, though it is getting better."*

In relation to their thoughts and feelings linked with delivery service at health institution, participants associated it with being naked (lift up on coach and sleep in lithotomy position expose to air and being visible to everybody) is as "shameful". A 26 years old woman amazingly illustrates the scene by saying:

> "*Sleeping on back with legs lifted up on coach and being observed by others is shameful.*"

In contrast, another 30 years old woman criticized the above mentioned idea and emphasized on the delay gratification than on the same old story, and she notes that:

> *"Generally, having follow up and delivering at health facility is good. No bleeding, placenta removed safely and will keep your life safe."*

This extract indicated that delivering at health institutions with professionals guarantees the life of the mother and the fetus at all cost.

The discussants also discussed the importance of ANC for the health of both the women and fetus. They also opined that its significance in relation to prevention of mother to child transmission of HIV/AIDS, immunization and detecting malpresentation. A woman aged 27 describes the advantage it has as follows:

> *"ANC follow up is good to fetus and to the mother not to have anemia, to know health status. Especially nowadays you will have HIV testing and counseling"*

2-Reasons for home delivery

The qualitative result also revealed that closer attention and support from family members as important factor related to home delivery. In addition, they pointed out that home delivery reduced unnecessary transportation and other costs especially for women who have no one to care for them and poor economic status particularly, after delivery. A woman aged 30 strengthens the aforementioned idea why mothers prefer to deliver at home as follow:

> *"Mother provides covering to us, relatives are nearby; so they will support us, give courage and allows us to change position during laboring. However, the health professionals don't allow getting in touch with laboring woman".*

From the above statements we can understand that the mother‟s point of view emanates from two perspectives. First, they thought that the treatment offered by the family members is hospitable and warm; whereas the professionals fail to do so or they are careless. Second, the absence of transport facility, especially, for those who live in the rural area and they prefer to give birth at their home.

The respondents pointed out that health service and skilled birth attendant utilization were low among rural women. This is directly related to distance, lack of awareness and rural women lack decision making power. Among the informants a 30 years old woman strengthened the above statement as follows:

> *"I am a government employee and work in rural area. Rural women do not prefer skilled professional for delivery. In the locality, mothers are giving childbirth at home. We saw many affected by bleeding and fetal distress. Then, we told them to deliver at health institutions to get healthy newborn."*

These statement implies lack of awareness in relation to traditional thinking around the rural area are making mothers pay the price though they know that they can get better treatment at the health centers.

Meanwhile, distance and transport were considered as major constraints by the discussants predominantly in rural area. Not only lack of infrastructure and means of transportation, but also the considerable absence of post delivery homecoming service of ambulance is a barrier for mothers not to go to health institutions. One of the participants (man) aged 45 supports the idea as follows:

> *"……My neighbor had labor and we immediately dialed to get ambulance. They responded that the ambulance had gone to another woreda which is far away from us. Subsequently, the mother gave birth at home with severe bleeding and she had also retained placenta."*

> *"Despite health education that health facility delivery is beneficial; there is problem related to transport. The ambulance only takes to health facilities but doesn't return back home. Especially it is so difficult to go up to rural area after delivery. So we decided to be at home".*

3-Religious and traditional factors

Some of the participants revealed that older mothers and traditional birth attendants were more accepted by the community because of their experience, respect to privacy of the laboring mother and their social acceptance. In addition, they have also stated the advantage of obtaining skilled birth attendant in relation to TBAs as TBAs are unskilled and practicing harmful traditional practice such as massaging. One of the informants aged 28 underlined that how delivering at home severely affect the life of the mother as well as the fetus up to the ever returning silence with incident she saw as follows:

> *"One of my relative, delivered at home with assistance of TBAs. Those TBAs don't tie umbilical cord appropriately and due to this, she had bleeding and later passed away".*

Similarly, another respondent (39 year old man) explained how delivering at home is harming the life of other people beyond the mother and the baby due to blood contact of supporters and the mother who do not know each other as stated below:

> *".....Above all problems; issues related with delivery, HIV/AIDS and TBAs are a major concern. The mother didn't know her health status and traditional birth attendants too. Such traditions are creating many problems both to the mother, newborn and others."*

As we observe from the women who stated their idea they are in need of delivering in a health institution, assisted by professionally skilled persons to ensure positive outcome. Nevertheless, the decision was not simply their own, particularly in rural areas, and the influence from other members of household such as husbands seemed strong. Correspondingly, urban woman (28 years old) elaborated how husbands are superiors on deciding on such situation and its consequence on the life of the mother and the baby as follows:

> *".....the husband didn't permit to take his wife to health facility. And she was in labor for three days. At the end of the day, she died".*

On the other hand, some women related it with religion, and they consider that wherever they deliver is the same or even better at their home since Saint Mary is with them as usual. It is also traditional that all the relatives, mothers, husbands, religious leaders gather and practice religious pray till the mother gives birth instead of taking the laboring women to health facility. A woman aged 24 strengthens the idea in a short expression by saying:

> *"Mothers deliver at home because labor is unpredictable and usually arises suddenly without warning. We believe labor and delivery will be fine with the will of Saint Mary".*

4-Quality of service during delivery

There are many problems associated with delivery service. Some discussants criticized the approach of health professional such as carelessness, impatience starting from reception to end of delivery, which might encourage mothers to deliver at home. Among the respondents 22 and 25 years old mothers strongly underlined that how health professionals approach can determine where to deliver with the incident they face and when they went to delivery as below:

> *"I delivered in health center. The duty nurse was hostile she even told me the fetus was lost. Besides, the nurse was arguing with staff members on my issue as she claimed to give referral to other health facilities. Moreover she had harsh behavior towards my relatives".*

> *"I have an experience when I delivered my last child in health facility; my newborn was delivered and got in to dirty holder as a result of health professional carelessness…"*

The focus group discussions revealed that the new initiation and practice with regard to good cultural practices such as coffee ceremony, porridge preparation and providing towel to the fetus after delivery at the health institutions encourages mothers to deliver at health facility. A 30 years old woman informant strongly agree with such initiations and recommends to keep practicing since our daily life highly associated with religion and indigenous culture, and stated that:

> *"It is a good motivation factor like coffee ceremony, porridge, providing towel for the baby and the like. If those cultural practices are persistently practiced in health facilities, pregnant mothers will go to health facilities to get delivery service…."*

Similarly, a male respondent aged 40 also explained the new practice related with delivery would greatly help mothers to deliver at health centers by citing what he saw there as follows:

> *"The health center serves by preparing porridge, coffee ceremony and others for mother who gave birth in health center. Surprisingly, I had a chance to engage in the coffee ceremony and porridge".*

6. Discussion

Delivery assisted by skilled providers is the most proven intervention in reducing maternal mortality and one of the MDG indicators (18). This community –based study identified very important determinants that are related to skilled birth attendant utilization among study subjects both in the urban and rural study areas. Factors influencing skilled birth attendant utilization of child bearing age women in the District were residence, age at interview, maternal education, having ANC follow up, final decision maker, knowledge and attitude towards danger signs of pregnancy, child birth and delivery services. Age at interview, maternal education, having ANC follow up and final decision maker were significant predictors in urban study subjects where as maternal education, time taken to nearby health center, having ANC follow up, parity, knowledge and attitude towards danger signs of pregnancy, child birth and delivery services were found to be determinant factors among study subjects in rural areas.

The results of the study revealed that the proportion of women who delivered with assistance of skilled birth attendant was 23.1% in the District. This result is in line with that of a study done Ephratanagidim District, North Shoa zone which was 21.4% (54). However, it was higher than Tigray Region EDHS result of 2011 which were 11.6% (12). The FGDs discussant indicated that the function of multipurpose health extension workers and developmental army play a pivotal role in providing information on services related to maternal and child health. This is in line with a study done on role of HEWs in improving utilization of maternal health services (55). This might be improvements in accessing and utilizing of the service and community mobilization through developmental army. On the other hand, it was lower than those studies conducted in central Tanzania and India where the proportion of women who gave birth at health facilities was 54% and 49.8%, respectively (40, 56). The difference could be explained by the fact that women in those countries had better economic status, educational status and ANC service.

There was a statistically significant association between place of residence and use of skilled birth attendant. The result revealed that urban women were more likely to give birth assisted by skilled birth attendants at delivery compared to their rural counterparts. This finding was in agreement with previous studies conducted in other areas of the country (35, 36, 43) and elsewhere (33, 57). The qualitative result also underpins the finding. One discussant elucidated that urban women were better in utilizing skilled birth assistant for delivery. Conversely rural women didn‟t prefer skilled birth attendant that was related with getting support and ensuring privacy. This might be due to the fact that urban women tend to have advantage from increased knowledge and access to delivery service. Health promotion mass media programs are urban-focused compared to the rural counterparts. On the other hand their rural counterparts are mostly influenced by traditional practices (38).

Women residing in areas less than 30 minutes walking distance were more likely to utilize skilled birth attendant than women walking more than 30 minute in rural area. The finding is in line with another study (32). The qualitative finding also complements the significance of distance and transport in utilization of skilled birth attendant. The FGDs indicates that rural mothers were subjected to home delivery due to distance issue and transportation problem. This may be explained with increasing distance from health facility and the increase in transport cost and lost production time, as well as possible lower exposure to health information.

Younger women were more likely to give birth assisted by skilled birth attendants than those with age of 35 years and above. This finding is in agreement with studies done in other areas of the country (38, 58) and elsewhere (59, 60). When younger women are just starting child bearing, they are told to be in a high risk group and so they tend to fear home deliveries. On the contrary, older women consider that giving birth at home is not risky as they had experienced previously. It is also higher proportion of younger women had formal education which in turn had different perspectives on delivery care when compared to the elder. These variables also influence the status of women in the society which has been found to influence decision making (38).

Among social factors women‟s education was statistically and positively related to the use of skilled birth attendants during delivery. Furthermore, women who had formal education were more likely to give birth assisted by skilled birth attendant than those who had no formal education. Again, the finding was consistent with other studies done in other areas of the country (35, 43, 61) and elsewhere (30, 56). Similarly, women‟s education was also strong predictor for skilled birth attendant in both urban and rural study areas. This may be due to the fact that educated women are more likely to make wise decisions about their own health and seek proper health care than their counterparts.

Parity was also another important factor which was associated with skilled birth attendant utilization for rural study subjects. Women with lower parity were more likely to deliver with assistance of skilled birth attendant. This finding agrees with several other studies (31, 56, 62). Lower parity women tend to give careful attention to seeking delivery assistance due to their lack of experience in pregnancy and fear of complication. Conversely, women with more children believe themselves to be more experienced in childbirth and for this reason, they are less likely to use skilled assistance during delivery (38). The discrepancy, between rural and urban, may be due to parity difference as rural respondents had higher number of parity.

The study also revealed a significant association between ANC visit during last pregnancy of the women and the use of skilled assistance during delivery in both urban and rural settings. women who had ANC visit were about four times higher odds of delivering with assistance by health professionals than mothers who didn‟t visit ANC. The result was in line with other studies done (29, 30, 37, 58). The finding is also supported by qualitative data as the discussants explained the importance of skilled birth attendant during childbirth by giving attention on prevention of mother-to-child transmission of HIV/AIDS and detecting malpresentation during delivery. It is fact that women having ANC visit are provided with health education and information regarding the benefits of having a skilled birth attendant during childbirth (63).

Women who had knowledge regarding pregnancy and delivery risk factors were more likely to give birth assisted by skilled birth attendant during delivery than those with poor knowledge. Similar findings were reported in other parts of the county and Sub-Saharan African countries (36, 60, 64). Women‟s attitude towards danger signs related to pregnancy and childbirth was also important predictor for the utilization of skilled birth assistant as women with favorable attitudes were more likely to use skilled birth attendant than those with unfavorable attitude. This finding was in agreement with a study done in Arsi zone, South East Ethiopia (43). The qualitative data also underpins that women who had poor knowledge were more likely to deliver at home. The participants reported that there are old fashion thinking, traditional practices and lack of awareness among women and husbands. Due to those practices women are facing problems.

This might mean that better informed individual is better placed to make reasonable decisions. Another explanation could be knowledge of danger signs of obstetric complication is the first step in the appropriate and timely referral for essential obstetric care (65). Moreover, the main reasons leading to poor use of skilled care services include personal belief, knowledge, attitude and life style of pregnant mother (66).

The patterns of decision making power within the household were perceived as key determinants of place of delivery. The study showed that joint decision making had significant association with use of skilled birth attendant during delivery among urban study participants. In contrast the association between final decision maker and utilization of skilled birth attendant during delivery were not significant in the rural study area. This discrepancy might be due to urban women having better educational status and exposure to mass media such as television. The finding is in agreement with study done in Uganda (67). This is also supported by qualitative findings. The urban FGDs discussants showed the importance of joint decision making for delivery care. On the other hand, husbands‟ concern and involvement to acquisition of skilled birth attendants weren‟t good in rural area as revealed from FGDs conducted both groups. This may be related to having discussion and sharing idea between couples. This in turn implies the importance of women‟s autonomy and decision making power and requirement of men‟s involvement in the reproductive health programs to orient and bring about a positive behavioral change towards utilization of health services (67).

Almost three quarters of women gave birth at home without the help of skilled birth attendants. More than two third were assisted by family members and mothers, followed by untrained traditional birth attendant. This finding was consistent with Tigray Region EDHS 2011 and studies done in other parts of the country (12, 36, 64). This might be due to the trust on the family or the relatives in giving support, close attention and fulfilling different cultural and religious ceremonies.

Concerning reasons for home delivery preference the finding revealed that having closer attention from family members, feel more comfortable, delivering at home being the women‟s experience, and distance and poor road were the commonest reasons. This finding is in agreement with studies done in North Gonder, Arsi Zone and South East Ethiopia (31, 35, 43). In the same way, the qualitative finding also revealed the importance of getting family support, use of different positioning during labor, and having glorious ceremony in their home. This implies significant proportions of women may seek help from skilled birth attendants after encountering obstetric complications and when other traditional interventions fail.

7. Strengths and Limitations of the study

Strengths

- Mixing method combining quantitative and qualitative study was used.
- Random sampling technique was employed. i.e., random selection of the kebeles
- Data collectors speak local languages and were the same sex with study subjects to minimize information biases.
- Standardized questionnaire based on similar studies

Limitations

- The study design was cross-sectional, which implies that the direction of causal relationships cannot always be determined i.e., temporal relations could not be assessed.
- There could be recall bias, since the women were asked for events within the last one year prior to the survey

8. Conclusion and Recommendations

8.1. Conclusion

Utilization of skilled delivery attendance services was low with a high number of deliveries being attended by unqualified persons at home. Women‟s education, place of residence, having ANC visit, age at interview, final decision maker and knowledge and attitude towards pregnancy, child birth and delivery services were found to be determinants of skilled birth attendance. Parity and time taken to nearby health centers were also significant predictors of institutional delivery in rural areas.

8.2. Recommendations

- Health professionals including HEWs should promote ANC follow-up with provision of maternal health service information particularly, encourage mothers to utilize skilled birth attendants during childbirth.
- Design strategies that increase the awareness of mothers and their partners about the benefits of institutional delivery and skilled birth attendants. Improvements should be made in social conditions including women‟s literacy.
- Promote HEWs through skills building to become SBA and assign skilled attendants at Health Post level to provide skilled home delivery to improve utilization of the service.
- Increase the number of vehicle for referral of the women with obstetric complication to the nearest possible health facilities with Comprehensive Emergency Obstetrics Cares.
- Different means of behavioral change communication should be designed to improve the demand for delivery services especially in rural areas. Emphasis should be given to community based conversation and enhance the role of developmental army.
- Moreover, to explore further factors related with the use of skilled assistance at delivery qualitative studies need to be conducted.

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Annex-I: Questionnaires

Addis Ababa University

School of Public Health

Department of Preventive medicine

I. English version Questionnaires

Information Sheet and Consent Form

A. Information Sheet

This questionnaire was prepared for collecting information on factors associated and determines use of skilled birth attendant among women who gave birth in the past 12 months in Raya Alamata District, Tigray region. The evidence (finding) of the operational study is going to feed into the road map of the ranges of partners and stakeholders on how best to strengthen and expand maternal health services in the country especially related to safe delivery and skilled birth attendant.

The proposed study is believed to contribute to the eventual improvement of health care service benefits of mothers. The aggregate final result is going to get shared to the pertinent decision makers at all levels. Therefore, participation in the study is seen as vital citizenry and societal opportunities as well as contributions.

B. Informed consent

My name is _____. I am working as data collector in a survey conducted by the collaboration of Addis Ababa University, school of public health so as to assess the determinants of skilled birth attendant utilization among women who gave birth in the past 12 months in Raya Alamata District. A code number will identify every participant and no names will be used. Your response will be kept confidential. Your participation in this study is completely on voluntary basis; you have the right to participate, or not to participate or refuse to do so at any time during the interview. You don't have to answer any questions that you don't want to answer. There will be no way of linking your individual responses to the final results of the study findings. However, your honest answer to these questions is very important for the purpose of the study. We would very much appreciate your participation in this survey by genuinely responding to the interviews. It would take 30 minutes to complete the questionnaire.

Would you be willing to participate?

Yes ☐ No ☐

001. Questionnaire Code_____

002. Locality_____

003. Household Number: _____

003. Date of interview_____

I. Sociodemographics characteristics of respondents

Q/ code	Questions (variable)	Response	Skipping pattern	Response code
101	Age at interview	_____		
102	Marital Status of mother	1. Married 2. Divorced 3. widowed 4. Single		
103	Place of residence	1. Urban 2. Rural		
104	Ethnicity	1. Tigre 2. Amhara 3. Oromo 88. Others specify _____		
105	Educational Status of mother	1. Unable to read and write 2. Able to read and write 3. Primary education 4. Secondary and above		
106	Educational Status of husband	1. Unable to read & write 2. Able to read and write 3. Primary education 4. Secondary and above		
107	Occupational status of mother	1. House wife 2. Government employed 3. Merchant 88. Other specify_____		
108	Occupational status of husband	1. Farmer 2. Employed(Government/Private 3. Merchant 4. Daily labourer 88. Other specify _____		
109	Religion	1. Orthodox 2. Muslim 3. Protestant 88. Other specify _____		
110	Family monthly expenditure	_____		
111	Do you have one of the following means of communication (ownership)	1. Radio 2. TV 3. Telephone 4. Mobile phone 5. None		

II. Obstetric characteristics of respondents

Q/ code	Question (Variable)	Response	Skipping pattern	Response code
201	Parity	_____		
202	Gravidity	_____		
203	Age at first marriage	_____		
204	Age at first Pregnancy	_____		
205	Do you have history of abortion?	1. Yes 2. No → 207		
206	If yes to question 3; what type of abortion	1. Induced 2. Spontaneous		

207	History of still birth	1. Yes 2. No		
208	Was the pregnancy planned or unplanned when you deliver your last childbirth?	1. Yes 2. No		
209	Did you have ANC visit during last pregnancy?	1. Yes 2. No →	211	
210	How many times did you receive ANC	_____		
211	What do think about the advantage of ANC follow up	1. To follow maternal health status 2. To follow fetal health status 3. Knowing fetal positioning 4. To anticipate problems that can occur during delivery 88. Other specify_____ 99. I don't know_____		
212	Was there any preparation for last Birth	1. Yes 2. No		
213	Place where last delivery took place in the past 12 month	1. Health facility → 2. Home	216	
214	If it is at home who was the assistant during last Delivery	1. Family member 2. My mother 3. TBA (Untrained) 4. Health worker 5. No one/Myself 88. Others_____		
215	What was your reasons for home delivery	1. Having closer attention from family members 2. Delivering at home is my usual experience 3. Labor was urgent and smooth 4. Distance and poor road 5. Feeling more comfortable 6. Unwelcoming approach of health workers 88. Other specify _____		
216	If your answer to question 13 is Health Facility, why did you choose to deliver in health Facility?	1. Better service in health facility 2. Save for the mother and child life 3. I was informed to deliver in health institution 4. Better outcomes from ID 5. Close to where I live 88. Other specify _____		
217	Were the ID services according to your expectations?	1. Yes (it is Good) 2. No (it is poor) 3. Not having specific expectations		
218	How long was the duration of labor?	_____		
219	Did you visit health facility for PNC after last delivery?	1. Yes 2. No		
220	What was the reason of visiting health facility for postnatal care?	1. Bleeding 2. Retained placenta 3. Puerperal sepsis 4. Perineal tear 5. Breast problem 88. Others specify _____		
221	Did you experience any adverse pregnancy outcome previously?	1. Yes 2. No →	223	

222	If "yes" to question 219: what are the complications experienced from previous delivery?	1. Bleeding 2. Prolonged labor 3. Retained placenta 88. Other specify _____		
223	Based on your experience and delivery outcome from your last childbirth, what would be your preference for future place of delivery?	1. Institutional delivery 2. Home delivery 3. No preference		
224	If you prefer institutional delivery, What is your main reason?	1. I have faced poor outcome from home delivery 2. The newborn has faced poor outcome from home delivery 3. It was against my intention that I delivered at home 4. Fear of HIV infection 88. Other reasons, Specify ____		
225	If you home delivery, what is your main reason?	1. I have faced better outcome from home delivery 2. The newborn has faced better outcome from home delivery 3. It is my usual practice. 4. I have observed that, deliveries can be handled at home. 88. Other reasons, specify ____		

III. Enabling, perceived problems and attitude and believes towards use of SBA

Q/ code	Question (Variable)	Response	Skipping pattern	Response code
301	Is there any health facility which gives delivery service in your area?	1. Yes 2. No		
302	How do you rate the easiness for you to get institutional delivery services if the need arises?	1. Very easy 2. Fair 3. Very difficult 4. Impossible		
303	Time taken to nearby health facility/center:	_____		
304	Can you get transportation services to visit HC with SBA?	1. Yes 2. No 99. Do not know _____		
305	Can you afford to pay for transportation services to visit HC?	1. Yes 2. No		
306	Perceived belief on ability of birth attendant's at delivery between skilled and unskilled birth attendants	1. Similar 2. Not similar		
307	Perceived problems by women with access to delivery care (multiple responses are possible)	1. Health facility far away 2. No skilled female health worker 3. Woman and relatives are not aware of delivery care 4. No transportation 5. I can't pay for services 88. Other specify_____		
308	Any pregnant and laboring women are susceptible to face delivery complications.	1. I agree 2. I disagree 3. Neutral		
309	Like any pregnant and laboring women, I am susceptible to face delivery complications.	1. I agree 2. I disagree 3. Neutral		

310	Delivery complications can be severe and may be hazardous to my well being.	1. I agree 2. I disagree 3. Neutral		
311	Delivery complications can be severe and may be hazardous to the newborn.	1. I agree 2. I disagree 3. Neutral		
312	Being attended by a skilled delivery attendant may be beneficial to my well being.	1. I agree 2. I disagree 3. Neutral		
313	Being attended by a skilled delivery attendant may be beneficial to the newborns wellbeing.	1. I agree 2. I disagree 3. Neutral		
314	It is very shameful to deliver on delivery bed in labor ward	1. I agree 3. Neutral 2. I disagree		
315	Women do not go to health facility for delivery because the health worker do not treat them respectfully	1. I agree 2. I disagree 3. Neutral		

IV. Questions related to knowledge of the mother about pregnancy and delivery

Q/ code	Question (Variable)	Response	Skipping pattern	Response code
401	Are there some health problems that can occur during pregnancy that could endanger the life of a pregnant woman?	1. Yes 2. No → 403 99. I don't know → 403		
402	Can you mention obstetric problems that can occur during pregnancy? (multiple responses are possible)	1. Vaginal bleeding 2. Severe headache 3. Blurred vision 4. Convulsion 5. Loss of consciousness 6. Severe abdominal pain 88. Others specify_____		
403	Are there some health problems that can occur during labor and delivery that could endanger the life of a pregnant woman?	1. Yes 2. No → 405 99. I don't know → 405		
404	Are there some obstetric problems that can occur during labor and child birth that could endanger the life of a pregnant woman? (multiple responses are possible)	1. Severe vaginal bleeding 2. Severe headache 3. Loss of consciousness 4. Labor lasting >12 hours 5. Retained placenta 88. Others specify_____		
405	What do you think the advantages of pregnancy and delivery related services are? (multiple responses are possible)	1. Anticipating problems 2. For early detection of health Problems 3. For better health care to the women 4. For better care to the newborn **88.** Others Specify_____		
406	What are danger signs that could occur after delivery? (multiple responses are possible)	1. Excessive bleeding 2. Retained placenta 3. Abdominal pain 4. Foul smelling vaginal discharge 5. Fainting 6. Severe headache 88. Other specify _____		

V. Preferences of place of delivery by husband and relatives as reinforcing factors

Q/code	Question (Variable)	Response	Skipping pattern	Response code
501	Who was decision maker about the past place of delivery	1. Myself 2. My husband 3. Both of us 4. Mother- in- law 88. Others _____		
502	What was preference of your mother about place delivery	1. Home delivery 2. Institutional delivery 88. Other specify _____		
503	What was preference of your mother about attendant of delivery	1. SBA 2. TTBA 3. TBA 4. Relatives 88. Others Specify _____		
504	What was preference of your husband about place of delivery	1. Home delivery 2. Institutional delivery 88. Other Specify _____		
505	What was preference of your husband about attendant of delivery	1. SBA 2. TTBA 3. TBA 4. Relatives 88. Others Specify _____		
506	What was preference of other family members about place of delivery	1. Home delivery 2. Institutional delivery 99. I don't know _____		
507	What was preference of the community about place of delivery	1. Home delivery 2. Institutional delivery		

VI. Satisfaction of study participants who delivered in health facilities during the past delivery

Q/code	Question (Variable)	Response	Skipping pa	Response c
601	Examination area cleanness and comfort	1. Very satisfied 4. Dissatisfied 2. Satisfied 5. Very dissatisfied 3. Medium		
602	Waiting time to see health worker	1. Very satisfied 4. Dissatisfied 2. Satisfied 5. Very dissatisfied 3. Medium		
603	How satisfied are you with the availability of supplies and equipment used by the health worker during your delivery?	1. Very satisfied 4. Dissatisfied 2. Satisfied 5. Very dissatisfied 3. Medium		
604	Client satisfaction with the support and respect offered by the provider during delivery	4. Very satisfied 4. Dissatisfied 5. Satisfied 5. Very dissatisfied 6. Medium		
605	How satisfied are you with the professional competency and skill of the health worker(s) during delivery?	1. Very satisfied 4. Dissatisfied 2. Satisfied 5. Very dissatisfied 3. Medium		
606	Confidentiality and trust of health provide	1. Very satisfied 4. Dissatisfied 2. Satisfied 5. Very dissatisfied 3. Medium		
607	Over all client satisfaction to the service obtained during Institutional delivery	1. Very satisfied 4. Dissatisfied 2. Satisfied 5. Very dissatisfied 3. Medium		

Focus Group Discussion Guide

Target: women who delivered in the past 12 months prior to the study, men whose wives have children one year and below.

Name of village ……

Code (Number) of participant ……

Sex ……

Age……..…….

Place of discussion …….

Marital status of participants: …….

Occupation of participants: ……

Time started ……Time ended ……

Name of moderator: …….....

Name of note takers: ……

Introduction

Good morning/afternoon participants. You are welcome to this discussion. I am/we are from Addis Ababa University. We would like to discuss and explore your views regarding pregnancy, childbirth and postnatal care. The purpose of this discussion is to provide information useful in designing interventions to further reduce maternal mortality in Ethiopia and specifically in a rural setting. We hope that your answers and discussion to our questions will important to understand the situation and it will helpful to improve maternal health care in this area. Feel free to discuss among yourselves and ask for clarification where necessary. All the information is strictly confidential and nothing you will say will make us unhappy. You do not have to reveal any personal information if you do not want to, but if you are willing to share your experiences; it will be very helpful to us in further understanding pregnancy and childbirth related issues. I/we would request that you be audible and speak one at a time so that all your important views are understood and written down. We also have a tape recorder that will help us to capture the discussion to ensure that we do not miss anything. We expect our discussion will last about 40-60 minutes. (Moderator seeks consent).

Thank you.

Interview guide for FGDs

I. Knowledge about pregnancy and the importance of deliver in health facility

1. What are the main health problems affecting pregnant women in this community?
2. Where do women seek antenatal care services in this community?(probe for What benefits do pregnant women gain)
3. Where do majority of women go for delivery? And what motivates them to deliver where they do?
4. Is it important that a woman should deliver in health facility? Why? Probe for both answers who are saying Yes or No. Are there some situations where it is ok or better to delivery outside the hospital? If yes, what are they?
5. What risks do mothers face during delivery? And how are these risks dealt with?
6. What health care practices do they get immediately after delivery? (Probe: Control of post partum haemorrhage, control of bleeding. Explore both biomedical and traditional practices)

II. Factors/reasons contributing to under utilization of skilled birth attendants during delivery

1. In your opinion what makes women not to deliver in health facilities? (Probe regarding issues such as distance, transport, expense, cultural factors etc.) What are the religions, traditional and cultural practices of the community during labor?
2. Who is responsible for making decisions in health seeking in the family?
3. What are the practices of the mother on selection of delivery place and what was your previous experience? (Probe: Why did you deliver your child in the health facility?
4. How do you see the quality of delivery services? (Probe: How do you get the approach of health workers to laboring mother? Will you deliver in health facility if you get pregnant again? Why? Probe for both answers who are saying Yes or No?

III. Suggestions for improvement

a. What can be done to improve maternal health care in this community?
b. How would you like to be treated by the health staff?

- Any questions or comments

Thank you very much for your participation!!

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ጤና ሳይንስ ኮሌጅ
ሕብረተሰብ ትምህርት ክፍል

II. Amharic version

ይህ የጥናት መጠይቅ በባለፈው አንድ ዓመት የወለዱ እናቶች የተለያዩ የወሊድ አገልግሎት እና የሰለጠነ ባለሞያ እንዲጠቀሙ የሚያበረታታቸውን ወይንም እንዳይጠቀሙ የሚያግዳቸውን የተለያዩ ምክንያቶች ለማጥናት ያገለግላል::ከጥናቱ የሚገኘው እውነታ በአገራችን በተለይ በእናቶች የሰለጠነ ጤና ባለሞያ የተመለከተ ሲሆን የጤና አገልግሎት በተለያዩ አጋር ድርጅቶችና ባለድርሻ አካላት በኩል እነዴት ማጠናከርና ማስፋፋት እንደሚቻል ለተቀመጠው አቅጣጫ ግብዓት ይሆናል::

የታሰበው ጥናት ለእናቶች የጤና አጠባበቅ አገልግሎት የሚያዳግም መሻሻል አስተዋፅኦ ያደርጋል ተብሎ ይታመናል:: በመጨረሻ የሚጠናቀቀው የጥናቱ ውጤት በየደረጃው ላሉ ጉዳዩ ለሚመለከታቸው ውሳነኔ ሰጭ አካላት እንድደርስ ይደረጋል:: ስለዚህ በጥናቱ መሳተፍ እንደ ዋና የዜግነትና ማህበረሰባዊ መልካም አጋጣሚ እንድሁም አስተዋፅኦ ይታያል::

<u>የተሳትፎ ስምምነት</u>

ስሜ _____ እባላለሁ:: በአዲስ አበባ ዩንቨርሲቲ የሕብረተሰብ ጤና ትምህርት ክፍል ቡድን አባል ነኝ:: የዚህ ጥናት ዓላማ ባለፈው 12 ወራት ውስጥ የወለዱ እናቶች የሰለጠነ ባለሞያ እና የወሊድ አገልግሎት እንዲጠቀሙ የሚያበረታታቸውን ወይንም እንዳይጠቀሙ የሚያግዳቸውን የተለያዩ ምክንያቶችን ለማጥናት እና መረጃ ለመሰብሰብ ነው:: ለዚህ ይረዳ ዘንድ በመጠይቁ ወቅት ማንኛውም የሚሰጡት መረጃ ቁጥር እንዲሰጠው ከመደረጉ ሌላ ስምም ሆነ ማንነት ሊገልፅ የሚችል ነገር አይሞላም:: እንዲሁም ለጥያቄዎቹ የሚሰጧቸው መልሶች በሙሉ ሚስጥራዊነታቸው የተጠበቀ ነው:: የእርስዎ ተሳትፎ በፍቃደኝነት ሲሆን፤ የመሳተፍ ወይም ያለመሳተፍ እንዲሁም ከመሃል የማቋረጥ መብት አለዎ::
የእርስዎ በዚህ ጥናት መሳተፍ እና ታአመኒ ምላሽ መሰጠት ለውጤቱ እና ለጥናቱ ዓላማ በጣም ጠቀሜታ አለው:: ይህንኑ ዓላማ እውን ለማድረግ እርሶ ለሚያሳዩት ቀና ተሳትፎ እና ትብብር በቅድሚያ አደንቃለሁ(አመሰግናለሁ):: ይህም ምናልባት ግማሽ ሰዓት ሊወስድ ይችላል::

- በዚህ መጠይቅ ለመሳተፍ ፍቃደኛ ኖትን?

አዎን ☐ አይደለም ☐

001.የመጠይቁ መለያ ቁጥር _____
002. አካባቢ _____
003. የቤት ቁጥር _____
004. መጠይቅ የተደረገበት ቀን _____

I. ማህበራዊ እና ኢኮኖሚያዊ ሁኔታዎች በተመለከተ

የጥያቄው መለያ	ጥያቄ (መጠይቅ)	መልስ	ወደሚቀጥው ጥያቄ ያምሩ	የመልስ መለያ
101	የተጠያቂ ዕድሜ	_____		
102	የጋብቻ ሁኔታ	1. ያገባች 2. ያላገባች 3. የተፋታች 4. ባለቤቷ የሞተባት		
103	የመኖርያ አካባቢ	1. ከተማ 2. ገጠር		
104	ብሔር	1. ትግሬ 2. አማራ 3.ኦሮሞ 88. ሌሎች _____		
105	የትምህርት ሁኔታ	1. ማንበብ መፃፍ የማትችል 2. ማንበብ እና መፃፍ ብቻ 3. 1ኛ ደረጃ ትምህርት የተማረች 4. 2ኛ ደረጃ እና ከዚያ በላይ		
106	የባለቤትዎ የትምህርት ሁኔታ	1. ምንም ያልተማሩ 2. ማንበብ እና መፃፍ የተማሩ 3. 1ኛ ደረጃ ት/ት የተማሩ 4. 2ኛ ደረጃ እና ከዚያ በላይ		
107	የስራ ሁኔታ	1. የቤት እመቤት 2. የመንግስት ሰራተኛ 3. ነጋዴ 4. የቀን ሠራተኛ 88. ሌሎች _____		
108	የባለቤትዎ የስራ ሁኔታ	1. የመንግስት ተቀጣሪ 2. የግል ተቀጣሪ 3. አርሶ አደር 4. ነጋዴ 88. ሌሎች _____		
109	ሐይማኖት	1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 88. ሌሎች _____		
110	የቤተሰብዎ ወርሃዊ ወጭ ስንት ነው?	_____		
111	የመገናኛ ብዙሃን አጠቃቀም በተመለከተ የትኞቹን ይጠቀማሉ?	1. ቴሌቭዥን 2. ራዲዮ 3. ቴሌፎን 4. ሞባይል 5. የለም		

II. ከወሊድ ጋር የተያያዙ ጥያቄዎች

የጥያቄው መለያ	ጥያቄ (መጠይቅ)	መልስ	ወደሚቀጥው ጥያቄ ያምሩ	የመልስ መለያ
201	ምን ያህል ልጆች በሕይወት አሉዎት?	_____		
202	እስከ አሁን ድረስ ስት ጊዜ አርግዘዋል?	_____		
203	ለመጀመሪያ ጊዜ ትዳር ሲመሰርቱ እድሜዎ ስንት ነበር?	_____		
204	ለመጀመሪያ ጊዜ እርጉዝ ሲሆኑ እድሜዎ ስንት ነበር? /በአመት/	_____		
205	ከዚህ በፊት ውርጃ አጋጥመዎት ያውቃል?	1. አዎ 2. የለም አላጋጠመኝም → 207		
206	ምን ዓይነት ውርጃ ነው ያጋጠመዎት?	_____		
207	ሞቶ የተወለደ አጋጥምዎት ያውቃል?	1. አዎን 2. የለም		
208	የመጨረሻውን ልጅዎን ሲወልዱ እርግዝናውበእቅድላይየተመሰረተ ነበር?	1. አዎን 3. የለም		
209	የቅድመ ወሊድ ክትትል ነበረዎት?	2. አዎን 3. የለም አልነበረኝም → 211		
210	ለቅድመ ወሊድ ክትትል ምን ያህል ጊዜ ወደ ጤና ተቋም ሂደዋል?	_____		

211	የቅድመ ወሊድ ክትትል ማድረጉ ጠቀሜታው ምን ይመስልዎታል?	1. የእናትየዋን የጤና ሁኔታ ለመከታተል 2. የፅንሱን የጤና ሁኔታ ለመከታተል 3. የፅንሱን አቀማመጥ ለመከታተል 4. በወሊድ ወቅት ሊያጋጥሙ የሚችሉ አንዳንድ ችግሮችን ቀድሞ ለመገመት 5. ጠቀሜታው ምን እንደሆነ አላውቅም 88. ሌላ ካለ ይጥቀሱ_____		
212	ወሊድን አስመልክቶ ቅድመ ዝግጅት ነበር?	1. አዎን 2. የለም አልነበረም		
213	የመጨረሻውን ልጅዎን የት ነው የወለዱት?	1. የጤና ማዕከል ውስጥ → 216 2. ቤት ውስጥ		
214	ቤት ውስጥ በወለዱበት ጊዜ ያዋለድዎ ማን ነበር?	1. ዘመዶች 2. እናቴ 3. ያልሰለጠነ የልምድ አዋላጅ 4. የጤና ባለሞያ 5. ማንም አልነበረም 88. ሌሎች ሰዎች ከሆኑ ይጥቀሱ _____		
215	ቤት ውስጥ የወለዱት ምክንያት ምንድን ነው?	1. ከቤተሰብ እንክብካቤ (ትኩረት) ለማግኘት 2. ሁልጊዜም የምወልደው ቤት ውስጥ ስለሆነ 3. ምጡ አጣዳፊ ስላነበረ እና ስላላስቸረገኝ 4. ጤና ተቋሙ ሩቅ መሆን እና መንገዱ አመቺ ያለመሆን 5. ቤት ውስጥ መሆኔ በራሱ የበለጠ ይመቸኛል 6. የጤና ባለሞያዎቹ አቀራረብ መጥፎ በመሆኑ 88. ሌላ ካለ ይጥቀሱ _____		
216	በጤና ማዕከል ውስጥ መውለድ የመረጡት ምክንያት ለምንድን ነው?	1. ጤና ተቋማት ውስጥ ያለው አገልግሎት ጥሩ ስለሆነ 2. ለኔም ለልጆም ደህንነት ጥሩ ስለሆነ 3. በቅድመ ወሊድ ባገኘሁት ምክር 4. በጤና ተቋማት መውለድ ውጤቱ የተሻለ 5. ጤና ተቋም በአቅራቢያዬ ስለሆነ 88. ሌላ ምክንያት ካለዎት ይጥቀሱ _____		
217	በጤና ማእከል ውስጥ የሚሰጠው የጤና የወሊድ አገልግሎት በፊት እንደጠበቁት ሆኖ ነው ያገኙት?	1. አዎ እንደጠበቅኩት ጥሩ ነበር 2. አዎ እንደጠበቅኩት መጥፎ ነበር 3. አስቀድሜ ጠብቄው የነበረ ሁኔታ የለም		
218	ምጡ ለምን ያህል ጊዜ ቆይቶብዎታል.	_____		
219	የመጨረሻ ልጅዎን ከወለዱ ለድህረ ወሊድ ክትትል ጤና ማዕከል ጐብኝተዋል?	1. አዎን 2. የለም → 219		
220	ለድህረ ወሊድ ክትትል የሄዱበት ምክንያት ምንድን ነው?	1. የደም መፍሰስ 2. የእንግዴ ልጅ መዘግየት 3. የማህጸን ህመም (ኢንፌክሽን) 4. በጡት ችግር 88. ሌላ ካለ ይገለፅ _____		
221	እርግዝናና ወሊድን ተከትለው የሚመጡ የጤና ችግሮች አጋጥመዎት ያውቃሉ? (የመጨረሻ ልጅዎ ውጭ)	1. አዎን 2. የለም → 223		
222	ለጥያቄ ቁጥር 221 መልስዎ አዎን ከሆነ ምን ዓይነት የጤና ችግር ነበር ያጋጠመዎት?	1. በማህፀን ደም መፍሰስ 2. ረጅም ሰዓት የወሰደ ምጥ 3. የእንግዴ ልጅ መዘግየት 88. ሌላ ምክንያት ካለዎት ይጥቀሱ _____		
223	የመጨረሻ ልጅዎን ቤት ውስጥ ሲወልዱ በገጠመዎት ሁኔታና ከወሊድ ቡላ በነበረው ውጤት ላይ በመመርኮዝ ወደፊት እርጉዝ ቢሆኑ መውለድ የሚመርጡት የት ነው?	1. የጤና ማዕከል ውስጥ 2. ቤት ውስጥ		
224	የወደፊት ምርጫዎ ጤና ማእከል ውስጥ የሆነበት ዋነኛ ምክንያት ምንድን ነው?	1. ቤት ውስጥ መውለዴ በጤናዮ ላይ አስከፊ ውጤት በማምጣቱ 2. ቤት ውስጥ መውለዴ በልጀ ላይ አስከፊ ውጤት በማምጣቱ 3. አሁንም ቤት ውስጥ የወለድኩት ያለእቅዴ በመሆኑ 88. ሌላ ምክንያት ካለዎት ይጥቀሱ _____		
225	የወደፊት ምርጫዎ ቤት ውስጥ የሆነበት ዋነኛ ምክንያት ምንድን ነው?	1. ቤት ውስጥ መውለዴ ምንም ዓይነት ችግር ስላልደረሰብኝ 2.ቤት ውስጥ መውለዴ በልጀ ላይ ጥሩ ውጤት በማምጣቱ 3.ሁልጊዜም የምወልደው ቤት ውስጥ በመሆኑ 4.ቤት ውስጥ መውለድ ምንም ችግር እንደማያመጣ ስለተገነዘብኩ 5. ሌላ ምክንያት ካለዎት ይጥቀሱ _____		

III. የጤና አቅርቦት፣ ስለወሊድ ያሎዎት አመለካከት

የጥያቄው መለያ	ጥያቄ (መጠይቅ)	መልስ	ወደ ተጠቆመው ጥያቄ ይሂዱ	የመልስ መለያ
301	በአቅራቢያዎ የወሊድ አገልግሎት የሚስጥ የጤና ተቋም ይገኛል?	1. አዎ 2. የለም		
302	በጤና ተቋም መውለድ ቢፈልጉም እንኳን በቀላሉ የማግኘትዎን ሁኔታ እንዴት ይለኩታል?	1. በጣም ቀላል 2. ደህና ነው 3. በጣም ከባድ 4. ማግኘት አልችልም		
303	ወደ አቅራቢያዎ ጤና ማዕከል የሚፈጅብዎት ጊዜ?	_____		
304	በሚወልዱበት ጊዜ የሰለጠነ ጤና ባለሞያ ወደሚገኝበት የጤና ማእከል ለመሄድ የሚያስፈልገውን የመጓጓዣ አገልግሎት ማግኘት የሚቸሉ ይመስለዎታል?	ነ. አዎን 2. የለም 99. እኔ አላውቅም		
305	በወሊድ ወቅት የሰለጠነ ጤና ባለሞያ እርዳታ ለማግኘት የመከፈል አቅም ያለዎት ይመስለዎታል?	1. አዎን 2. የለም		
306	ስለሰጠነ አዋላጅ ባለሙያ እና የልምድ አዋላጅ ችሎታ ላይ ያለዎት አመለካከት	1. ተመሳሳይ 2. ተመሳሳይ አይደለም		
307	ጤና ተቋም ላይ ላለመውለድ ምክንያቶች ምንድን ናቸው ብለው ያስባሉ?	1. ጤና ተቋም በቅርብ ርቀት ያለመኖሩ 2. የሰለጠነ የሴት አዋላጅ ባለሞያዎች አለመኖራቸው 3. ስለ ጤና ተቋም ወሊድ አገልግሎት ግንዛቤ ማነስ 4. የመጓጓዣ እጥረት መኖር 88. ሌላ ካለ ይገለፅ _____		

የወለዱ እናቶች ከወሊድ ጋር ስለተያያዙ ችግሮች አስከፊነት እና የሰለጠነ ጤና ባለሞያ እርዳታ ማግኘት በወሊድ ውጤት ላይ የሚስከትለውን ለውጥ በተመለከተ የሚጠየቁ ጥያቄዎች ሲሆኑ እርስዎ ጋር የሚስማማዎትን "እስማማለሁ" የማይስማማዎትን "አልስማማም" ወይም "ምንም አይነት አስተያየት የለኝም" በማለት ይመልሱ።

የጥያቄው መለያ	ጥያቄ (መጠይቅ)	መልስ	ወደተጠቆመው ጥያቄ ይሂዱ	የመልስ መለያ
308	ማንኛዋም እርጉዝና ወላድ ሴት በወሊድ ምክንያት ለሚመጡ የጤና ችግሮች የተጋለጠች ነች?	ነ. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም		
309	እኔ እንደማንኛዋም እርጉዝና ወላድ ሴት በወሊድ ምክንያት ለሚመጡ የጤና ችግሮች የተጋለጥኩ ነኝ?	ነ. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም		
310	በወሊድ ምክንያት ለሚመጡ የጤና ችግሮች አስቸጋሪ በመሆናቸው በጤናዮ ላይ አስከፊ ውጤትን ሊያስከትሉ ይችላሉ?	ነ. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም		
311	በወሊድ ምክንያት ለሚመጡ የጤና ችግሮች አስቸጋሪ በመሆናቸው በምወልደው ልጅ ላይ አስከፊ ውጤትን ሊያስከትሉ ይችላሉ?	ነ. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም		
312	በወሊድ ወቅት የሰለጠነ ጤና ባለሞያን እርዳታ ካገኘሁ ከወሊድ ቡሃላ የተሻለ የጤና ሁኔታ ሊኖረኝ ይችላል?	ነ. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም		
313	በወሊድ ወቅት የሰለጠነ ጤና ባለሞያን እርዳታ ካገኘሁ ከወሊድ ቡሃላ የልጀ የጤና ሁኔታ የተሻለ ሊኖረው ይችላል?	ነ. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም		
314	ማዋለጃ ክፍል ውስጥ አልጋ ላይ መውለድ በጣም አሳፋሪ ነው	1. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም		
315	እናቶች ጤና ተቋም መውለድ የለባቸውም ምክንቱም ጤና ባለሞዎች ክብር ስለማይሰጡ ነው	1. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም		

IV. የእናቶችን የእርግዝና የወሊድን እውቀት የተመለከተ ጥያቄዎች

የጥያቄው	ጥያቄ (መጠይቅ)	መልስ	ወደተጠቆመው	የመልስ
401	በእርግዝና ወቅት ሊያጋጥሙ የሚችሉ የጤና ችግሮች አሉ?	1. አዎን 2. የሉም → 403		
402	ለጥያቄ ቁጥር 401 አዎን ከሆነ ሊያጋጥሙ የሚችሉ የጤና ችግሮች እነማን ናቸው?	1. በማህፀን ደም መፍሰስ 2. ከፍተኛ የራስ ምታት 3. የአይን መጭበርበር 4. መንቀጥቀጥ 5. ራስህን መሳት 6. ከፍተኛ የሆድ ህመም 88. ሌላ ካለ ይገለፅ _____		
403	በምጥና በወሊድ ወቅት የእናቶች ጤና እና ህይወት አደጋ ላይ የሚጥሉ የጤና ችግሮች አሉ ብለው ይገምታሉ?	1. አሉ 2. የሉም → 405 3. አላውቅም → 405		
404	ለጥያቄ ቁጥር 403 መልስዎ አዎን ከሆነ ችግሮቹ እነማን ናቸው?	1. በማህፀን ደም መፍሰስ 2. መንቀጥቀጥ 3. ከፍተኛ ራስ ምታት 4. ረጅም ጊዜ የሚወስድ ምጥ 5. ራስህን መሳት 6. የእንግዴ ልጅ መዘግየት 88. ሌላ ካለ ይገለፅ _____		
405	የእርግዝና የወሊድ አገልግሎቶች ምን ዓይነት ጥቅም አላቸው?	1. ችግሮችን ቀድሞ ለመገመት 2. ችግሮችን በተሎ ለመለየት 3. ለእናቶች ጥሩ እንክብካቤ ለመስጠት 4. ለጨቅላ ህፃን እንክብካቤ ለመስጠት 88. ሌላ ካለ ይጠቀስ _____		
406	በድህረ ወሊድ ወቅት ሊከሰቱ የሚችሉ አደገኛ ምልክቶች እነማን ናቸው?	1. በማህፀን ደም መፍሰስ 2. የሆድ ህመም 3. መጥፎ ሽታ ያለው የማህፀን ፈሳሽ 4. ራስህን መሳት 5. ራስ ምታት 88. ሌላ ካለ ይገለፅ _____		

V. ወላድ እናቶች ባለቤቶች፣ የቤተሰብ አባላት እንዲሁም ሌሎች የሕብረተሰብ አካላት ቤት ውስጥ እና በጤና ማእከል ውስጥ ስለሚሰጡ የወሊድ አገልግሎት በበተመለከተ አመለካከት የሚጠየቁ ጥያቄዎች

የጥያቄው መለያ	ጥያቄ (መጠይቅ)	መልስ	ወደተጠቆመው ጥያቄ ይሂዱ	የመልስ መለያ
501	የመጨረሻ ልጅዎን ሲወልዱ የወለዱበትን ቦታ ማን ወሰነው?	1. ራሴ 2. ባለቤቴ 3. ሁለታችን በጋራ 4. አማቴ 88. ሌላ ካለ ይጠቀስ _____		
502	እናትዎ የት እንዲወልዱ ምርጫ ነበራቸው?	1. ቤት ውስጥ 2. ጤና ተቋም 88. ሌላ ካለ ይጠቀስ _____		
503	እናትዎ ማን እንዲያዋልድዎ ምርጫቸው ነበር?	1. የሰለጠነ ጤና ባለሞያ 2. የሰለጠነ የልምድ አዋላጅ 3. ያልሰለጠነ የልምድ አዋላጅ 88. ሌላ ካለ ይገለፅ _____		
504	ባለቤትዎ የት እንዲወልዱ ምርጫቸው ነበር?	1. ቤት ውስጥ 2. ጤና ተቋም 88. ሌላ ካለ ይገለፅ _____		
505	ባለቤትዎ ማን እንዲያዋድዎ ምርጫቸው ነበር?	1. የሰለጠነ ጤና ባለሞያ 2. ያልሰለጠነ የልምድ አዋላጅ 3. የሰለጠነ የልምድ አዋላጅ 88. ሌላ ካለ ይጠቀስ _____		
506	ሌሎች ቤተሰቦችሽ የት እንድትወልጂ ይመርጣሉ?	1. ቤት 2. በጤና ማዕከል 88. ሌላ ካለ ይገለፅ _____		
507	ማህበረሰቡ የት እንድትወልዱ ይመርጣል?	1. ቤት 2. ጤና ማዕከል 88. ሌላ ካለ ይገለፅ _____		

VI. በጤና ማዕከል ለወለዱ እናቶች ስለጤናው ተቋም አገልግሎት እርካታ በተመለከተ

የጥያቄው መለያ	ጥያቄ (መጠይቅ)	መልስ	ወደ ተጠቆመው ጥያቄ ይሂዱ	የመልስ መለያ
601	የወለዱበትንና የማዋለጃ ቦታውን ፅዳትና ምቾት እንዴት ይገምቱታል?	1. በጣም ያረካል 2. ያረካል 3. መካከለኛ 4. አያረካም 5. በጣም አያረካም		
602	የጤና ባለሞያ እርዳታን ለማግኘት የወሰደብዎት ጊዜ በተመለከተ ?	1. በጣም ያረካል 4. አያረካም 2. ያረካል 5. በጣም አያረካም 3. መካከለኛ		
603	በወሊድ ጊዜ የተጠቀሙዋቸው መሳሪያዎችና አቅርቦት እንዴት ይገምቱታል?	1. በጣም ያረካል 4. አያረካም 2. ያረካል 5. በጣም አያረካም 3. መካከለኛ		
604	በወሊድ ጊዜ የተደረገልዎት እንክብካቤና ክብር እንዴት ይገምቱታል?	1. በጣም ያረካል 2. ያረካል 3. መካከለኛ 4. አያረካም 5. በጣም አያረካም		
605	የጤና ባለሞያዎች ችሎታና ብቃት እንዴት ይገመግሙታል?	1. በጣም ያረካል 2. ያረካል 3. መካከለኛ 4. አያረካም 5. በጣም አያረካም		
606	የጤና ባለሞያዎች ተአማኒነትና ሚስጥር ጠባቂነት እንዴት ይገመግሙታል?	1. በጣም ያረካል 4. አያረካም 2. ያረካል 5. በጣም አያረካም 3. መካከለኛ		
607	አጠቃላይ የወሊድ ጤና አገልግሎት እርካታ እንዴት ይገመግሙታል?	1. በጣም ያረካል 4. አያረካም 2. ያረካል 5. በጣም አያረካም 3. መካከለኛ		