ADDIS ABABA UNIVERSITY FACULTY OF MEDICINE
SCHOOL OF PUBLIC HEALTH

Assessment of factors affecting utilization of institutional delivery among women of childbearing age in Harari Region, East Ethiopia.

By: Abdi Beker (BSc)

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

Advisor: Solomon Shiferaw (MD, MPH)

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List of Abbreviations

ANC	Antenatal Care
AIDS	Acquired Immune Deficiency Syndrome
CSA	Central Statistics Authority
CVD	Cardiovascular Disorder
DHS	Demographic Health Survey
EMNOC	Emergency Neonatal and Obstetric Care
EHNRI	Ethiopian Health and Nutrition Research Institution
FMOH	Federal Ministry of Health
FP	Family Planning
HC	Health Center
HF	Health Facility
HH	House Holds
HWs	Health workers
HHRI	Health and Health related indicator
HES	Health Extension Service
HIV	Human Immunodeficiency Virus
HP	Health Post
HSDP	Health Sector Development Program
MCH	Maternal and Child Health
MDG	Millennium Development Goals
NHCs	Nucleus Health Centers
PHCU	Primary Health Care Units
PNC	Post Natal Care
UN	United Nations
UNDP	United Nations Development Program
UNFPA	United Nations Fund for Population Activities
UNICEF	United Nations Children's Fund
WB	World Bank
WHO	World Health Organization

ABSTRACT

Introduction*: Institutional delivery, a childbirth conducted by skill attendant in health facility built, equipped and managed to provide safe delivery service as one of its function, is responsible to provide greater assurance to find skilled attendant, essential equipment and drugs to manage labour and referral transportation as the need arises.*

Objective: *This study assessed factors that affect utilization of institutional delivery among child bearing age women in Harari Region.*

Methodology: *Community based unmatched case control study complemented with qualitative design was employed to assess factors that affect utilization of institutional delivery. Totally, 462 mothers 154 cases and 308 controls who had delivery within the last 24 months were enrolled and interviewed with pre tested questionnaire using Face-to-face interview & in-depth interview of key informants as data collection methods. EPI INFO Version 3.5.1 and SPSS version 15 statistical software were used to enter and analyze the data, respectively. Descriptive statistics, Univariate, Bivariate and Multivariate analysis of logistic regression as well as* X^2 *test were used to determine factors that affect institutional delivery utilization. P-Value less than 5%, OR with 95% CI were used to show statistically significant association.*

Results*: This study singled out a number of factors that affect institutional delivery utilization, mothers with secondary and more educations were 5.8 times more likely to use facility delivery compared with those had no formal education. Similarly mothers from house holds with 500ETB and more monthly income were 2.4 times more likely to use facility delivery. Obstetric factors such as ANC use, previous delivery complications, previous facility delivery utilization, Knowledge of risk associated with home delivery and benefit of institutional delivery were found to be independent predictors of institutional delivery utilization.*

Conclusion and Recommendations: *factors that affect facility delivery utilization found to be different and interrelated at individual, family and community level. Based on these facts Promotion of women/girl education, promotion of income generating activities, health information, communication based on obstetric risk and benefit of safe delivery, organizing and promoting mother and community support group to improve awareness on planned and safe delivery are recommended.*

1. Introduction

Maternal health is the complete physical, social and psychological well-being of a woman of reproductive age. Maternal mortality and morbidity is the most important indicator of maternal health status (1, 2).

In Ethiopia maternal and child health programs (MCH/FP) was established in 1979 following WHO Alma Ata Primary health care declaration. Since then the country adopted and endorsed different new policies and international conventions including millennium declaration with the goal to reduce maternal death by 3/4th by the year 2015. Currently, our national health strategies is committed to achieve the Millennium Development Goals through 20-years plan of health sector development program (HSDP) to attain universal access to essential primary health care service by 2017(3).

For centuries, the issue of maternal health was considered as the responsibility of mothers and midwives. It is only in the 20th century that maternal health is recognized as major public health problem. Currently over 300 million mothers suffer from long and short-term illness furthermore over 500,000 women lose their lives due to complications related to pregnancy and childbirths worldwide. According to EDHS 2005, about 673 mothers die for every 100,000 live births in Ethiopia (4, 5).

The risk for a woman in least developed country dying from complications related to pregnancy and delivery is 300 times greater than that in industrialized country are. Health institutions and skilled attendants are exclusively responsible to make motherhood safe. Currently about 43% of women around the world receives some sort of care but not full range of what needed to avoid maternal deaths. In 2007, about 62% of births around the world were attended by skilled attendants where institutional delivery also accounts for only 54% of deliveries furthermore skilled attended and institutional delivery in least developed countries was 39% and 32%, respectively but the situation is more sever in Ethiopia where institutional and skilled attended delivery is only 4% and 6 % respectively (5, 6).

Universal access to maternal health care can make difference in reducing maternal and neonatal mortality. Many efforts have been undertaken to improve access to health care services in Ethiopia. However, utilization remains low. Many researches worldwide have shown maternal healthcare utilization determined by different factors.

Most papers in Ethiopia focus around antenatal care and few published around health facility delivery utilization. This paper intended to provide findings around factors affecting institutional delivery utilization among women of childbearing age in Harari region, as institutional delivery is an entry point to safe delivery and EMNOC to reduce delivery related complications and deaths.

1.1 Rationale of the study

Ethiopia is one of the least developed countries with poor maternal health status. More than twenty thousand mothers lose their life each year from pregnancy and its related effects. The trends of maternal health showed marginal improvement in the year 2000 to 2005, but not adequate to meet the reduction of 75% maternal deaths by the year 2015 (5).

Despite the effort to expand health service coverage, the utilization rate remains low. It is necessary to find out why existing health facilities remain underutilized. Institutional delivery is among the lowest utilized maternal health care. There are limited published reports on factors affecting institutional delivery service utilization in Ethiopia.

Regardless of saturated health facility distribution, utilization of institutional delivery remains low in Harari region. Therefore, this paper tried to find out the reasons behind underutilization of institutional delivery service among mothers in Harari Region.

2. Literatures Review

2.1 Magnitude of maternal health problems

Concern for good pregnancy and delivery outcome make women the largest segment of population seeking care. Currently less than half of women around the world receive some sort of care, which is not adequate to avert complications (6).

In spite of the various international efforts, over 300 million women are still suffering from acute and chronic complications related to pregnancy and childbirth. Approximately 529,000 women die from pregnancy and its related complication each year that accounts for 20% of total deaths in females, among these deaths over 90% occur in developing countries. Mothers living in developing world face 300 times more risk of death than their counter females living in industrial world. Sub-Saharan Africa and south Asia accounts for 86% of these deaths (4, 6, and 8).

About 80% of maternal deaths related to direct causes namely Hemorrhage, Obstructed labour, eclampsia and unsafe abortion while 20% related to indirect causes such as anemia, malaria, HIV/AIDS and CVD. Between 11 to 17% and 50 to 70% of deaths occur during delivery and postnatal period, respectively of which 45% occur immediately with in 24 hrs following delivery mainly due to postpartum hemorrhage (7, 6).

Poor maternal health care also affects the health of their babies. In a year about 4 million neonatal deaths that accounts for 40% of under five mortalities occur around the world. Almost 98% of these deaths occur in developing world. Moreover, millions who survived also suffer lifelong disabilities. Globally, over 136 million child births that occur each year, out of which 400 mothers per 100,000 live births die. Over 20 million mothers suffer childbirth related complications. About 23% of them report post delivery problems like urine retention or incontinency, trauma to genital tract, uterine prolapse and fistula attributable to poor labour outcome (4, 6, and 7).

2.2 Poor maternal health progress

As various international efforts have been under way to improve maternal health, some countries succeeded in improving maternal and child health. In 20 century, industrialized nations could halved maternal mortality by improving professional delivery care and further reduced to the current level by increasing access to hospitals. Nevertheless, countries with high burden of maternal morbidity and mortality made little progress or even worsen in some cases (4, 6, and 9).

African countries are achieving the least, less than one percent, far below 5.4% recommended to meet 2015s MDG goal (10-13). Extreme poverty remain the main challenge in regions where the progress remain stagnant by causing a break down in health system that resulted in failure to provide timely and adequate care or provide untimely, ineffective, unresponsive or discriminatory service (7).

All Mothers deserve skilled birth attendants regardless of their risk status. Health institution and skilled health workers are responsible to make childbirth safe. Institutional delivery, a childbirth conducted by skill attendant in health facility built, equipped and managed to provide safe delivery service as one of its function, is responsible to provide greater assurance to find skilled attendants, essential equipments and drugs to manage labour and referral transportation as the need arises (1, 4, 6, 14).

During the period of 2001 to 2007, potential health service coverage in Ethiopia expanded from 61.3% to 86.7%; however, utilization remains low due to different reasons. In 2007, out of 3 million expected childbirths, only 451,700 (16.4%) of them were attended by skilled attendants (15). According to EDHS 2005, 94 % of pregnant mothers in Ethiopia give birth at home. Public and private facility delivery accounts only for 5 and less than one percent, respectively. Delivery situation in Harari Region is not significantly different from that of national figure, where 66.5% and 35% of deliveries occur at home and facility, respectively (5).

.2.3 Determinant factors for institutional delivery

2.3.1 Sociodemographic factors: several studies have indicated that institutional delivery has potential to prevent or cope with complications that arise during childbirth. However, most of mothers prefer to deliver at home and institutional deliveries remain under utilized. Availability and access of the service, maternal or partner education, income status, maternal age are among the major factors affecting institutional delivery utilization (13, 16, and 17). However, availability and access alone cannot reverse maternal condition but the content and quality of facility and service does matter (8, 18, 19, and 20).

Distance from facility, transportation means and cost found to be among major barriers to health care (9, 11, 21, 22). Mothers living in rural or poor access areas to health facility, most likely to give birth at home (23). According to study based on analysis of EDHS 2000, delivery care utilization ranges 71% in Addis Ababa, to 31% in other urban areas. Mothers living in Addis Ababa, likely to use institutional delivery 40 times more than those living in rural and 4 times than other urban areas(24, 25). Another study conducted in Bench woreda shows 48.8% of urban and 18.5% of rural mothers gave birth at health institutions (26). Study conducted in Indonesia also shows 59% lower odds of facility delivery utilization among women residing in rural area than urban (17).

Income is also another factor that affects institutional delivery Utilization (5, 13, 16, 17, and 21). Unequal opportunity for women to employment and financial resource affects their capacity to make choice of place of delivery and delivery attendants. EDHS 2005 has shown higher employment of 86% among men compared with 29% of women. Though $1/3^{rd}$ of married women were found to be employed as much as $3/5^{th}$ of them were not paid at all (5). According to study conducted in Rwanda mothers from higher wealth quintile were 2.6 times more likely to use institutional delivery (13).

A study conduced in Gonder also shows Lower utilization among mothers who earn less than 500ETB OR 0.04 95% C.I (0.02.0.08) compared with those who earn more than

500ETB per month (16). Another study conducted in Indonesia shows 3 times more likely use of professional assisted delivery among high income mothers (17) another study conducted in Ghana shows 4.4 times more utilization of institutional delivery among higher income mothers (21).

Some studies indicated Spontaneous vaginal delivery might cost great amount of household's expenditure. For instance in Togo and Costarica, it costs up to 34% of annual household expenditure (7). Similar study conducted in Kenya indicated mothers living in low-income urban areas face greater obstacle of accessing maternal care facility (34). Similar other study conducted in Ghana shows 18% higher utilization of institutional delivery among mothers from higher income (38). Further more a study conducted in Tanzania also indicated 39% lower utilization of institutional delivery among mothers from low income house hold (35).

Several Studies have shown strong correlation of maternal or partners' education status with the choice of place of delivery (13, 16, 17). Mothers who have primary or further educational level tend to use institutional delivery more. In Ethiopia, delivery care utilization is 52 % among Educated and 2% in uneducated mothers, which is 4.5-to eight time more utilization among primary and secondary level educated mothers (5, 25).

Another Study conducted in Becho woreda showed 2.7 times likelihood of facility delivery utilization among mothers that have secondary education level (26). Most of maternal deaths also occur among families who have no formal education or poor access to obstetric information. Women who have access to radio or information are more likely use skilled attendants (16, 19, and 21).

Similar study conducted in Bangladesh has shown mothers with secondary and higher education 4 to 9 times more likely to use professional assisted delivery when compared with out completing education (41). Further another study from the same area has indicated the likely hood of lower utilization of institutional delivery among non educated

OR=0.24 and 0.40 among elementary mothers when compared with at least secondary education level. Furthermore this study has shown as upper age mother's more likely to receive modern health care delivery than lower age groups (40).

Religion is another factor that affects institutional delivery service utilization. In Indonesia, non-Muslims had 92% lesser utilization of skilled attended delivery (17). Study in Ghana shows 5.43 more likely utilization of facility delivery among Muslims (21). Nevertheless, in Nigeria Christian uses more than Muslims and local traditional belief followers (27). In Ethiopia Orthodox/Catholic, Muslim, and Protestant women exhibit greater use of maternal health care services than women who follow traditional beliefs (25).

2.3.2 Factors related to obstetric care service and complication

Antenatal care service provides an opportunity for health promotion, prevention, screening and monitoring maternal health problems and helps to arrange for planned delivery (1, 7). Essential obstetric cares can avert 59% of maternal mortality and it has most significant importance in developing countries (9, 13).

According study conducted in Indonesia ANC 4^{+} visits showed significant increased association with facility delivery (17). Another study conducted in Kenya, 58% of mothers that had 4^{+} ANC visit used institutional delivery compared with 2% of single visit and 48% 2 to 3 respectively (9), however its effect is limited due to late beginning (22). In Rwanda, 86% of mothers who did not used antenatal care gave birth at home (13).Similarly, study conducted in Ghana also showed 1.5 time more utilization of facility delivery among ANC attendants (21).

Another study conducted in rural India also indicated ANC as independent predictor of institutional delivery utilization where mothers who had 3+ ANC more likely to utilize 4.33 times compared with those who had none. Similarly mothers who had sever delivery complications, who access health facility with in five kilometers and had all weather road has shown 32%, 31% and 31% higher utilization of facility delivery, respectively (32).

Another study carried out in Mali also shows similar finding where mother who had no ANC follow up shows significant lower utilization of professional assisted delivery OR=0.206 and institutional delivery OR= 0.188 (37).

Obstetric experience is one of the determinant factors. A mother with history of previous delivery complications tends to use facility delivery more. According to study conducted in Indonesia women that had history of terminated pregnancy and birth complications, have 28% and 24 % greater odds of skilled attendant use (17). Similarly another study conducted in rural Mali has shown that mothers who had delivery and pregnancy related complication one and half times more likely use institutional delivery than those who had none (37).

2.3.3 Maternal related factors and house hold status

Mothers age below 20 and above 35 years show lower utilization than age 20 to 35 years. Utilization of facility delivery inversely related to parity and birth order, multiparous mothers are less likely to use institutional delivery and mothers from male-headed households are more likely to use institutional delivery (5, 13, 16, and 27).

Another study conducted in India has shown similar finding where mothers with birth order less than two 1.6 times more likely utilize public facility for delivery likewise mothers of age greater than 30 years and 20 to 30 years, 61% and 63 % more likely use public facility respectively for delivery compared with age less than 20 years (36).

Women status affects freedom to make choice of place of delivery and positive health outcomes. EDHS 2005 indicated positive relation of mother status with utilization of maternal health service including ANC, delivery and PNC where empowered women more likely utilize maternal care. The study has shown only 15% of mothers make their solo decision regarding their own health while one third reported such decisions made by their husband alone (5). Some other studies also singled out as women empowerment can significantly reduce physical violence there by decreases its negative impact on maternal health and pregnancy outcomes (21, 30).

Maternal perception and knowledge is another factor that affects choice of place of delivery. Community and facility based education and partner involvement can play significant role in increasing facility care delivery and utilization of skilled attendant. A study conducted on educational intervention in Bangladesh resulted in two-fold increase in utilization of EMNOC during pregnancy and delivery. A randomized trial study conducted in Nepal also shows 1.9 times increased knowledge of obstetric and complications among mothers received health education with their husbands than alone (39). Some studies also shows allowing mother's companion and attendant presence throughout labour process affects maternal perceptions of providers as well as facility based delivery care. According to a study conducted in Ghana 85% mothers want their attendant to present throughout labour (14, 31).

Across sectional study in Sheka zone has shown 59% of mothers knew at least one pregnancy related risk further more 52% mentioned at least one accepted pregnancy danger sign while 47.1% mentioned one delivery related danger signs and 56.7% mentioned at least one benefit of institutional delivery further more this study reported significant association of knowledge of pregnancy, delivery related danger signs and benefit of institutional delivery with facility delivery utilization (27).

Another cross sectional study conducted in Rural Bangladesh to assess knowledge, attitude and practice regarding hospital delivery revealed 97% consider pregnancy as period of risk and 80.6% mentioned home delivery as risk however only 7.1% knew delivery danger signs. Though 85.5% showed positive attitude to facility delivery but only 33.2% gave birth at health facilities (33).

Similar other study conducted in Nairobi Kenya (n=394) on birth preparedness has shown that 67% of mothers knew danger signs of pregnancy where 64.2% mentioned hemorrhage, loss/decreases fetal movement by 20.1%, drainage of liquor by 10.9% and swelling of face and hands by 2.3%, respectively (34).

Accordingly, this study tried to identify and most important factors associated with institutional delivery utilization among mothers in Harari region who gave birth in the past two years prior to the survey in Harari Region.

3. OBJECTIVES

3.1 General objectives

1. To assess factors that affect utilization of institutional delivery among women of child bearing age in, Harari regional state, Ethiopia.

3.2 Specific Objectives

1. To assess determinants of institutional delivery service utilization among women of child bearing age in Harari regional state.

2. To describe reasons for non-use of institutional delivery among women of child bearing age in Harari regional state.

4. Methodology

4.1 Study Design

Community based unmatched case control study with complementary qualitative design was conducted in March and April 2010, where the cases were mothers who had institutional delivery and controls were those mothers who had home delivery in the two years prior to data collection period.

4.2 Study area

The study was conducted in Harari regional state, which is located 525 km from Addis Ababa in east Ethiopia. The region is divided into 9 administrative districts of which 6 are urban and 3 rural. According to the 2007 census, the projected population of 2009 is estimated to be 209,000. The major ethnic groups based on population size of the town are Oromo, Amhara Harari, Guragie, Tigre and Somali.

The region has five Hospitals, 3 Health centers, 4NHCs, and 23 HPs, 22 private clinics for profit and 10 for non profit Clinics with 780 bed capacities and 81.3% potential health coverage. Further more there are 4 pharmacies, 13 drug shops, 3 rural drug vendors and one whole seller in the region. Government's facility in the region also staffed with 40 physicians,14 health officers, 266 nurses of whole category, 39 health extension workers 25 health assistants, 16 pharmacy technician,11 environmental health workers,9 radio graphers ,4 laboratory technicians and2 pharmacists(42).

4.3 Data collection Period: Data was collected from March to April 2010.

4.4 Source population: all women of age 15-49 years old

4.5 Study population: all women who had at least one delivery in the 24 months prior to the survey.

- **Inclusion criteria:** mothers who had delivery in 24 months prior to data collection and volunteer to participate.
- **Exclusion criteria:** Mothers who did not gave birth in Harari region in the past two years prior to the survey and all Mothers who were not mentally and/or physically capable of being interviewed.

4.6 Sample size determination

Based on previous studies, maternal age at first delivery, parity, birth order, household's income and maternal education were assumed as factors that affect delivery service utilization (5, 16, and 25). Sample size was computed for each factors, finally age of mothers at first delivery was chosen as exposure factor to calculate manageable optimal sample size using EPINFO version six (1993) stat calculation employing the following formula:

$$n = \frac{\left[Z\frac{\alpha}{2}\sqrt{(1+\frac{1}{r})P(1-P)} + Z\beta\sqrt{P1(1-P1) + \frac{P2(1-P2)}{r}}\right]^2}{(P1-P2)^2}$$

According to DHS 2005 the proportion of institutional delivery and home delivery was 35% and 65%, respectively in Harari region. Therefore ratio of institutional delivery to home delivery was 35%:65% which is equal to1:2 that represent case to controls ratio in the region (5).

If age of mothers at their first delivery considered as exposure factor, from study conducted in Gonder (16), the proportion of institutional delivery;

- Among age 20-29 was 69/69+194= 26.2% which is P1
- Among age less than 20 years was 96/96+875= 9.9% is P2;
- α is the significance level of the study which is 5% and β is the power of the test equal to 80%
- $Z\beta = 1.28$, $\frac{Z\alpha}{2} = 1.96$, $n1/n2 = 1:2$,
- $P = \frac{P1+rP2}{1+r} = 2$ r is ratio of n2 to n1 equal to 2 where;
- n_1 is sample size for cases and
- n_2 is sample size for controls.
- Based on the above formula stat Calc produce ;
- $n1 = 70$ and $n2 = 140$. After, 10% non-response rate and two-stage design effect considered, n1= **154** and n2 = **308**, which gave the total sample size of **462.**

4.6.1 The sampling Procedure

A total of seven urban and three peri urban kebeles were drawn randomly and included in the study. The selections of peri urban kebeles were limited to those within 10km around the town for logistic and transport purposes.

Multi stage sampling methods were used to identify subadminstrative regions from which study kebeles were selected. Households with 365 cases and 938 controls were identified by survey for sampling frame from which Sample households were chosen by systematic sampling technique, every 2nd interval for cases and 3rd interval for controls. All eligible respondents in the Households were interviewed but for House holds where elements were not found revisited on appointment once again.

For qualitative design, purposive sampling technique was employed. Key informants that include ten mothers from community, four service managers, and four service providers were chosen from Regional Health Department and facilities respectively which included Jinela, Aratenya Health centers, Hiwot Fana and Jugal hospitals. The decision to stop additional key informant choice was based on the fact of repetition of the emerging views.

4.7. Variables

4.7.1 Dependent Variable: Institution delivery service utilization or place of delivery.

4.7.2 Independent Variables include:

- Socio demographic -Maternal Age, Marital status, age at marriage, Ethnicity, religion, maternal husband and house hold income, Educational status (women/husband), Occupation (women/husband)
- Obstetrics characteristics - age at first pregnancy, age at last delivery, Gravidity, Parity, birth order, ANC use, childbirth complications, knowledge of obstetric risks, risks of home delivery, benefit of HF delivery, Previous facility delivery experience
- Social factors -decision role of significant others, reasons for use and non use of facility delivery care, risk perceptions related to pregnancy and child birth

- Health facility factors- distance, availability of delivery care, service fee, supplies, skill of health workers ,conduct of skilled attendants and perceived quality of delivery care among factors included in the study.

4.8 Data Collection methods

* Face to face interview with structured questionnaire of women of age 15-49 years.
* In-depth interview of key informants
* All mothers were interviewed in their living home privately but for key informant, interview was conducted at their respective office or facility.

4.8.1 Data collection Instruments

For quantitative part, face to face interview with standard structured and semi- structured questionnaires prepared by reviewing relevant literatures and also adopted from previous similar studies was used. The English version was translated to Amharic and retranslated into English by different individuals, to check for consistency. Finally, reviewed and pretested Amharic version was used for data collections. Furthermore two other major local languages of Afan Oromo and Harari were also used to help mothers to understand questions.

For conducting in-depth interview with key informants an Audio recorder and short note were also used to collect Qualitative data using short list of guiding Questions. All questionnaire and questions were checked for completeness before leaving interviewee and key informants.

4.8.2 Selection and training of data collectors

Ten female Nurses and one supervisor were recruited by PI with a staff from regional office. Data collectors were selected on the base of knowledge of Local language and previous data collection experience. They were given two days training by principal investigator prior to data collection. More over they were also introduced to research ethics, their responsibility and administrative issues including the work schedule. Each Data collectors were assigned to kebeles they chosen based on their knowledge of the locality. Further more one Extension health workers were participated with data

collectors in identifying sampling units in their respective Kebeles. The principal investigator and supervisor closely monitored data collection activity on daily bases.

4.8.3 Pre testing

Prior to the main fieldwork, pre test was conducted on twenty mothers from other kebeles that had no chance to participate in the main study on mothers who were characteristically similar to the participant ones. Pre test was used to improve the precision, reliability, and validity of data. Following the analysis of the pretest out come, ambiguous or unimportant questions were removed and unclear statements were rephrased based on identified problems and omissions. The time required for data collection was also determined and used for further data collection planning.

4.8.4 Data quality

The questionnaire was reviewed, pretested and adjusted accordingly based on pretest findings. Two days training was given to the data collectors and supervisors. Data was collected under close supervision of principal investigator and supervisors. Ten percents of the questionnaires was double entered and checked for consistency after data entry.

4.8.5 Operational Definitions

1. **Institutional delivery-** delivery conducted in health institutions through assistance of skilled attendants.
2. **Home delivery**: delivery took place at locations other than health facility.
3. **Health facility delivery service utilization**: Giving birth at a setup where safe delivery is being provided, at health facilities built and equipped for this service.
4. **Safe Delivery**: delivery conducted by skilled attendants to monitor the progress and manage labour in order to avoid complications that endangers the wellbeing of both mother and newborn.

5. **Skilled attendant**: people with midwifery skills (as doctors, midwives, and nurses) who have been trained in the skills necessary to manage normal deliveries and diagnose, manage, or refer obstetric complications.
6. **Women of childbearing age**: Any women of aged 15 to 49 years old irrespective of their fertility status.
7. **Woreda**: Administrative unit equivalent to district that comprise number of kebeles.
8. **Kebele**: The lowest administrative unit in Ethiopia

4.8.6 Data entry and analysis

The data was entered by EPI INFO version 3.5.1 August 2008 and exported to SPSS version 15 statistical package for analysis. Descriptive and inferential statistics were employed. Frequencies, proportion and summary statistics used to describe the study population in relation to relevant variables.

Univariate and Bivariate analysis were used to assess the unadjusted effects of independent variables which were estimated without controlled for other variables. Furthermore variables shown statistical significance in bivariate analysis included in for multivariate logistic regression model to predict the adjusted effect of independent variables by controlling of possible confounding effects .Odds ratio with 95% confidence interval was employed to assess statistical significance and degree of association between independent and dependent variables.

The Bivariate and multivariate analysis conducted with place of delivery as dichotomous dependent variables against independent variables from Sociodemographic back ground, obstetric history, Knowledge of pregnancy and delivery related complications and experience, maternal attitude/perception of potential risk of delivery complication, women status in decision making of place of delivery and delivery attendant as well as maternal satisfaction regarding skill of providers, perceived quality of care given and the conduct of health providers were included in the analysis.

4.8.7 Ethical considerations

The research was approved by Institutional Review Board of Medical Faculty. Ethical approval was also obtained from Research Ethics Committee of Public Health School Regional Health Bureau as well as Health institutions head, respectively before conducting the study. Informed consent was also obtained from participants before data collection started. Specifically, participants were informed about the objectives of the study.

Additionally local languages; Amharic, Afan Oromo and Harari were used for data collection to facilitate understanding. The participation was purely voluntary, and the right of not to answer any part or all of questions was respected. For participant under age 18 year that lives under parents or guardian, assent of one parent or guardian was obtained.

Confidentiality and privacy was maintained by recruiting and training female data collectors and conducting interviews in separate space in their living compound. Moreover, respondents' names were excluded from questionnaire. Clarification of questions related to the study was made by principal investigator for participants through out the period of data collection and study. For this purpose, Address of principal investigator was added on each information sheet of the questionnaire.

4.8.8 Dissemination of the result

The findings from this study will be communicated with organizations working on maternal health in the region, Regional health Bureau and submitted to Addis Ababa University School of graduate studies for partial fulfillment of degree of Masters in Public Health. Effort will be made to publish the findings on peer reviewed scientific journal.

5. Results

5.1 Sociodemographic characteristics

A total of 462 mothers who had delivery in Harari region with in the last two years prior to data collection were recruited which give 100% response rate. Among which 154 and 308 represent cases and controls, respectively. The mean age of mothers during data collection was 25.9 $\pm$ 5 years with range of 18 to 41 years for cases and 26.5±5.3 years with range of 17-45 years for controls. Majority of respondents were in the age group of 20 and 34 years which account 86.4% for cases and 87.7% for controls. Generally 6.5% and 6.3% of them were less than 20 years and 35^{+} years of age groups respectively. More than half of them, 68.3% for control and 50.6% for cases had got married at age below 20 years with the mean age of 19.6 $\pm$ 3.5 for cases and 18$\pm$2.5 for controls .Regarding marital status majority of them 91.6% of cases and 90.6% of controls were married. From total respondents 3.5% (n=16), 2.4% (n=11), 2.2 % (n=10) and 1.1% (n=5) were separated, divorced, widowed and never married, respectively.

Forty two percent of (n=462) reported had no any formal education which constitute 54.9% of controls and16.2% of cases while 23.7 % of controls and 18.8% cases had elementary level. Majority of cases (64.9%) and 21.4% of controls had secondary and above educational level respectively. Majority of respondents belong to Ethnic group of Oromo (34.4 % of cases and 69.5% of controls) and Amhara (38.3% of cases and 18.5% of controls, respectively while 7.4%, 5.8% and 3.8% of all respondents belongs to Guragie, Harari and other ethnic groups respectively. A greater portion of them were also Muslims (51.9 % of cases 77.6% of controls) and orthodox Christian (43.3% of cases and 20.5% of controls) while 2.8% belongs to protestant and catholic.

Most of respondents were house maker which account 64.3% of cases and 80.8% of controls, respectively. And only a few mothers had payable jobs where government and private employment accounts for 20.1 % and 4.9% for cases and controls respectively, additionally 11% of cases and 7.5% of controls were merchants and 4.5% of case and 6.8 % of controls were also day labour worker.

Table: 1 Distribution of Sociodemographic characteristics of Respondents in Harari Region, March 2010.

Variables	Category	Institutional delivery utilized		Total
		Yes=Cases(n=154)	No=Controls(n=308)	N (%)
		N (%)	N (%)	
Mothers age	Less than 20 years	8(5.2)	22(7.0)	30(6.5)
	20- 34 years	133(86.4)	270(87.7)	403(87.2)
	>=35 Years	13(8.4)	16(5.2)	29(6.3)
Mother education	None	25(16.2)	169(54.9)	194(42.0)
	1-6th	29(18.8)	73(23.7)	102(22.1)
	7-10th	59(38.3)	54(17.5)	113(24.5)
	Above 10th	41(26.6)	12(3.9)	53(11.5)
Ethnic group	Amhara	59(38.3)	57(18.5)	116(25.1)
	Oromo	53(34.4)	214(69.5)	267(57.8)
	Harari	17(11)	10(3.20)	27(5.8)
	Others	25(16.2)	27(8.8)	52(11.2)
Religion	Orthodox Christian	67(43.3)	63(20.5)	130(28.1)
	Islam	80(51.9)	239(77.6)	319(69.0)
	Protestant/catholic	7(4.5)	6(1.9)	13(2.8)
Occupational status	House wife	99(64.3)	249(80.8)	348(75.3)
	Govt/Pvt Employee	31(20.1)	15(4.9)	46(9.9)
	Merchants	17(11)	23(7.5)	40(8.7)
	Day Laborer	7(4.5)	21(6.8)	28(6.1)
Mother income status	None	99(64.3)	249(80.8)	348(74.4)
	Less than 500ETB	25(16.2)	40(13.0)	65(14.0)
	500ETB & above	30(19.5)	19(6.2)	49(10.6)
Marital status	Married	141(91.6)	279(90.6)	420(90.9)
	Separated	3(1.9)	13(4.2)	15(3.5)
	Divorced	2(1.3)	9(2.9)	11(2.4)
	Widowed	5(3.2)	5(1.6)	10(2.2)
	Single	3(1.9)	2(0.6)	5(1.1)

Among those respondents who had payable jobs (n=114); 16.2 % of cases and 13% of controls earns up to 500ETB per month while 19.5% of cases and 6.2% of controls reportedly earn 500 and more ETB per month.

Regarding husband education, 6.5% of cases' and 33.4% of controls' husband had no any formal education while 9.7% cases and 22.4% of controls had primary level and 81.9% of cases and 41.9% of controls had secondary and above level of education, respectively.

Table: 2 Distribution of Sociodemographic characteristics of Respondents in Harari Region, March 2010.

Variables	Category	Institutional delivery utilized		Total
		Yes= cases(154)	No= controls(308)	N (%)
		N (%)	N (%)	
Husband Education	None	10(6.1)	103(33.4)	113(24.5)
	1-6th	15(9.7)	69(22.4)	84(18.2)
	7-10th	54(35.1)	86(27.9)	140(30.3)
	Above 10th	72(46.8)	43(14)	115(24.9)
Husband occupation	Unemployed	2(1.3)	9(2.9)	11(2.4)
	Govt/Pvt employee	98(63.6)	87(28.2)	185(40.1)
	Farming	10(6.5)	86(27.9)	96(20.8)
	Merchants	22(14.3)	32(10.4)	54(11.7)
	Day Laborer	19(12.3)	87(28.2)	106(22.9)
Husband income	less than 500ETB	30(19.5)	115(37.3)	145(31.4)
	500ETB and above	120(77.9)	176(57.1)	296(64.1)
Household income	less than 500ETB	24(15.6)	113(36.7)	137(29.7)
	500ETB and above	129(83.8)	184(59.7)	313(67.7)

Regarding husbands occupation from (n=452) majority of cases (63.6%) were government or private employee compared with 28.2% of controls. Farming is second ranked occupation where 27.9 % of controls and 6.5% of cases engaged in. About 14.3% of case and 10.4% of controls were also merchants while 22.9 % and 2.4% of all were day labourers and unemployed, respectively.

Among those husbands who had a sort of payable job 19.5% of case and 37.3% of controls earn up to 500ETB per month while 77.9% of cases and 57.1% of controls earn 500 and more ETB per month respectively. Similarly monthly house hold income also assessed, accordingly 15.6% of cases and 36.7 % of controls' House holds reported to earn up to 500 ETB per months while 83.8% and 59.7% of cases and controls' household earns 500 and more ETB per month, respectively.

5.1 Obstetric Characteristics

Obstetric characteristic and obstetric experience of respondents as well as knowledge of the health risk related to pregnancy and childbirth complications were also assessed. Accordingly about 29.2% of cases and 47.4% controls reportedly had their first pregnancy at age below 20 years while majority of controls 70.1 % and 51.6% of case had first pregnancy experience at age 20 to 34 years, respectively. Similar numbers of respondents' comprising 47.1% of controls and 29.2 of cases had their first delivery at age below 20 years while majority of cases 70.1% and 51.9% of controls had their first delivery at age 20 to 34 years. Only less than one percent of mothers had their first pregnancy and delivery at age 35 and above years.

Regarding gravida from total respondents (n=462), about 48.1% of cases and 26.6% of controls had one pregnancy experience. Majority of controls 56.8% and 45.1% of cases had two to four pregnancy experiences while 5.8 % of cases and 16.6% of controls had five and more total pregnancy experience respectively.

Regarding obstetric out come history 89.6% of all respondents had less than four live births while 10.4% had five or more live birth. About 6.7% (n=31) mothers had one or more abortion. Similarly 4.7% (n= 22) mothers reported still birth, 1.7% (n=8) and 1.7% (n=9) also had reported perinatal and infant deaths, respectively.

Table: 3 Distribution of last pregnancy Obstetric characteristics of Respondents in Harari region, March 2010.

Variables	Category	Institutional delivery utilized		Total
		Yes= cases(154)	No=controls (n=308)	N (%)
		N (%)	N (%)	
Mothers age at last delivery	<20	19(12.3)	45(14.6)	64(13.9)
	20- 34	129(83.3)	250(81.2)	379(82.0)
	35^{+}	6(3.9)	13(4.2)	19(4.1)
Total No. of pregnancy	one	75(48.7)	82(26.6)	157(34.0)
	2-4	70(45.1)	175(56.8)	245(53.0)
	5+	9(5.8)	51(16.6)	60(13)
Birth order of last baby	1^{st}	75(48.7)	82(26.6)	157(34)
	2 to 4^{th}	72(46.8)	183(59.4)	255(55.2)
	5^{th} +	7(4.5)	43(14)	50(10.8)
Last pregnancy was intended	Yes	119(77.3)	179(58.1)	298(64.5)
	No	35(22.7)	129(41.9)	164(35.5)
Last pregnancy ANC follow up	Yes	148(96.1)	224(72.7)	372(80.5)
	No	6(3.9)	84(27.3)	90(19.5)
No Of ANC visit of last pregnancy	<4	54(35.1)	138(44.8)	192(41.8)
	>4	94(61.0)	86(27.9)	180(39.0)
	None	6(3.9)	84(27.3)	90(19.5)
Time Last ANC started	First trimester	37(24)	34(11)	71(15.4)
	Second trimester	90(58.4)	136(44.2)	226(48.4)
	Third trimester	54(17.5)	21(13.6)	75(16.2)
Last Delivery attendant	TBA	0	203(65.9)	204(44.2)
	H/ Workers	154(100)	18(5.8)	172(37.2)
	TTBA	0	71(23.1)	70(15.2)
	F/Members	0	16(5.2)	16(3.5)
Ever Had Delivery complication	Yes	28(18.2)	26(8.4)	54(11.7)
	No	126(81.8)	282(91.6)	408(86.3)
Last delivery Complication	Yes	15(9.7)	22(7.1)	37(8.0)
	No	139(90.3)	286(92.9)	425(92.0)

Regarding time elapsed since last delivery; about 14.1% of mothers had their last pregnancy ended less than 6 months ago while 32.3%, 28.4% and 25.3% had their last

pregnancy ended in the last 6-12 months, 13-18 months and 19-24 months ago respectively. Concerning birth order of the last delivery about 48.7% of cases and 26.6% of controls reported to be first birth order, while 46.8% of cases and 59.4% of controls reported to be 2nd to 4th birth order. Only 4.5% of cases had fifth and more birth order compared with 14% of controls.

Further more about 77.3% of cases and 58.1% of controls reported their last pregnancy was intended while 22.7% of cases and 41.9% of controls' reported their last pregnancy was unintended. In relation to ANC 96.1 of cases and 72.2% of controls had ANC follow up where 35.1% of cases and 44.8% of controls had less than 4 time visit and 61% of cases and 27.9% of controls had four or more ANC visits to their respective health facilities for the last pregnancy during data collection. Among those mothers who had ANC follow up for their last pregnancy, 24% of cases and 11% of controls started their ANC follow up in the first trimester while 58.4% of cases and 44.2% of controls started at second trimester of their pregnancy further more 13.6% of cases and 17.5 % controls started their ANC attendance lately in the third trimester.

Majority mothers reported their last delivery were mostly attended by TBA 44.2 % (n=204) followed by Health workers 37.2% (n=172) while 15.2 (n=70) and 3.5 % (n=16) were attended by TTBA and family members respectively only 5.8% received professional assisted delivery at home. About 7.4% (n=34) respondents reported immediate or late delivery complication during their last delivery while 11.7 % (n=54) also reported pervious delivery related complications.

5.2 Obstetric knowledge

Obstetric knowledge of mothers was assessed using knowledge of health risk related to pregnancy, Danger signs that could appear during pregnancy and delivery, birth complication that mother might face during home delivery, the benefit of giving birth at Health facility as well as whether delivery related complications are preventable and treatable at health facility.

Table: 4 Obstetric Knowledge and Perception about risk of delivery complication, delivery care and Attendants among mothers in Harari region, March 2010.

Variable	Institutional delivery utilized		Total
	Yes= cases(154)	No=Control(308)	N (%)
	N (%)	N (%)	
Know pregnancy related Health risks			
Yes	113(73.4)	70(22.7)	183(39.6)
No	41(26.6)	238(77.3)	279(60.4)
Know Danger signs of pregnancy			
Yes	123(79.9)	88(26.6)	205(44.4)
No	31(20.1)	226(73.4)	257(55.6)
Know Danger signs during delivery			
Yes	122(79.2)	89(28.9)	211(45.7)
No	32(20.8)	219(71.1)	251(54.3)
Know Home delivery Risks			
Yes	132(85.7)	89(28.5)	221(47.8)
No	22(14.3)	219(71.1)	241(52.2)
Know Benefit Of Institutional delivery			
Yes	149(96.8)	156(50.6)	305(66.0)
No	5(3.2)	152(49.4)	157(34.0)
Birth complication Preventable			
Yes	91(59.1)	85(27.6)	176(38.1)
No	63(40.9)	223(72.4)	286(61.9)
Birth Complication Treatable			
Yes	144(93.5)	187(60.7)	331(71.6)
No	10(6.5)	121(39.3)	131(28.4)
Any pregnant at risk of delivery Complication			
Yes	126(81.8)	112(36.4)	238(51.5)
No	28(18.2)	196(63.6)	224(48.5)
You are at Risk of delivery Complication			
Yes	124(80.5)	89(28.9)	213(46.1)
No	30(19.5)	219(71.1)	249(53.9)
Delivery complication could be dangerous to you			
Yes	139(90.3)	177(57.5)	316(68.4)
No	15(9.7)	131(42.5)	146(31.4)
Delivery complication could be dangerous to your baby			
Yes	144(93.5)	10(6.5)	331(71.6)
No	187(60.9)	121(39.3)	146(31.4)
Health worker birth attending skill			
Not good	29(18.8)	36(11.7)	65(14.1)
Good	123(79.9)	99(32.1)	222(48.1)
Don't know	2(1.3)	173(56.2)	175(37.9)
Care Health worker provided during delivery			
Not good	32((20.8)	38(12.3)	70(15.2)
Good	121(78.6)	98(31.8)	219(47.4)
Don't know	1(0.6)	172(55.8)	173(37.9)
Behavior of health workers attending labour			
Not good	32(20.8)	38(12.3)	70(15.2)
Good	121(78.6)	100(32.5)	221(47.8)
Don't know	1(0.6)	170(55.2)	171(37.0)

Accordingly 73.4% of cases and 22.7% of controls mention one or more pregnancy related health risks that could encounter a pregnant mother during her pregnancy. Nearly similar portion 79.9% of cases and 26.6% of controls mentioned at least one danger sign of pregnancy, similarly 79.2% of cases and 28.9% of controls mentioned at least one delivery related danger signs, respectively where 78.6% of cases and 27.3% of controls mentioned vaginal bleeding, 74.7% of cases and 25.3% of controls mentioned swelling of face and feet, abnormally increased blood pressure by 59.1% cases and 14.3% of controls, and 43.5% of cases and 10.7% of controls mentioned decreased or absent fetal movement as danger signs that a mother could come across during her any pregnancy.

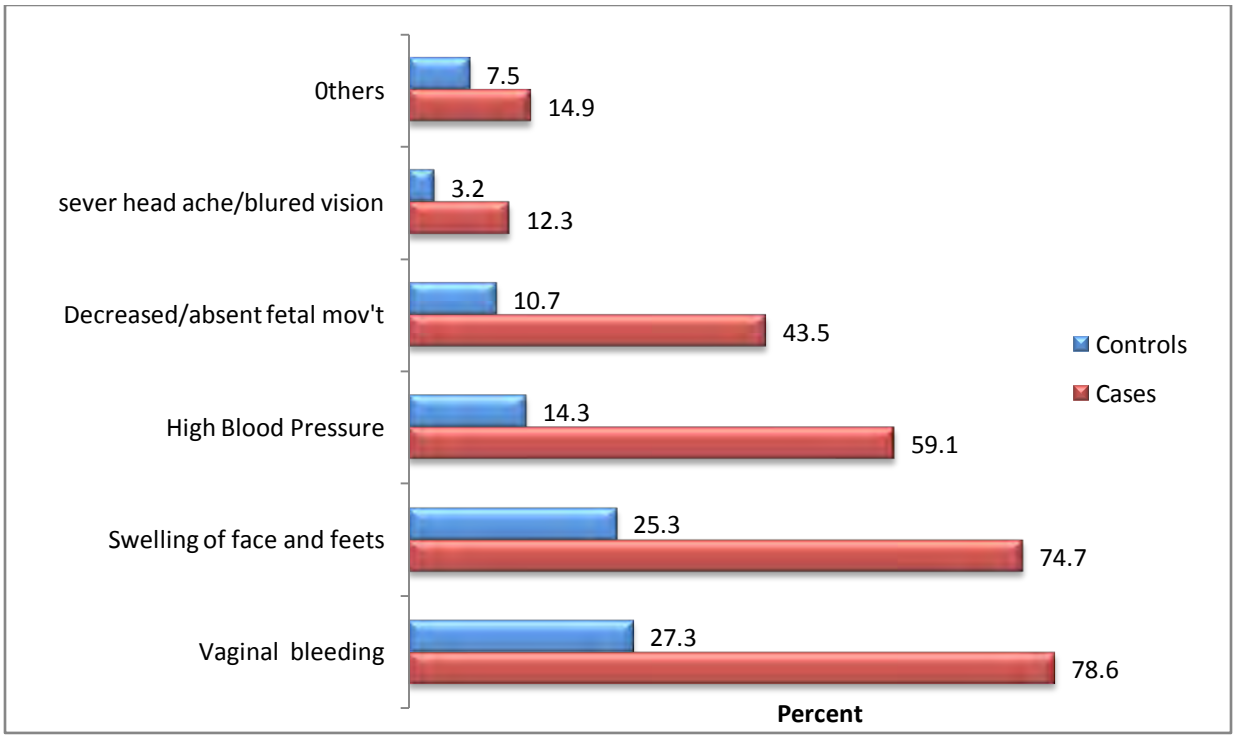

Fig: 1 Percentage of pregnancy related danger signs mentioned by respondents, Harari region, (n=154 cases and n=308 of controls) March 2010.

Furthermore the followings were also mentioned as danger signs of delivery profuse bleeding by 78.6% cases and 27.3% of controls, prolonged labour by 73.4% of cases and 23.7% controls, retention of placenta by 70.8% of cases and 21.4% controls, malpresentation by 71.4 % cases and 19.5% of controls, high blood pressure 20.8% of

cases and 1.9. % controls furthermore premature rupture of membrane was mentioned by 11.7% of cases and 1.9% of controls, respectively.

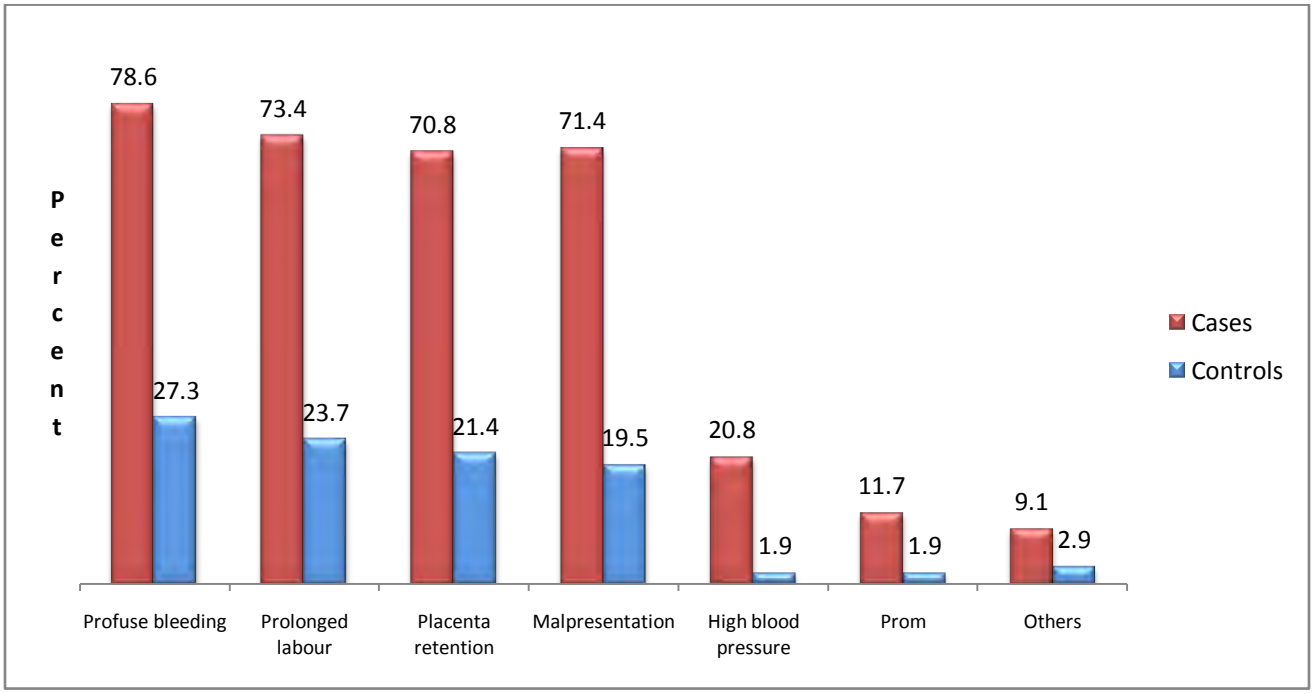

Fig: 2 Percentage of delivery related danger signs mentioned by respondents, Harari Region, March 2010. (n=154 cases and n=308 for controls)

Additionally majority respondents 85.7% of cases and 28.5% of controls mentioned one or more delivery related health risks or complications that baby or mother could face if mother give birth at home. Similarly 96.8% of cases and 50.6% of controls also responded one or more appropriate benefit that mother and baby could receive during institutional delivery care. Further more a significant proportion of mothers 93.5% of cases and 60.7% controls considered most of delivery related complication as can be treated at health facility but fewer 57.1% of cases and 27.6% of controls believe as most delivery related complication can be prevented with appropriate care.

5.2 Respondents' perception about obstetric risks, delivery Service and women decision role.

Respondents perception about delivery related complications, care provided to laboring mother during institutional delivery as well as skill and behavior of attendants also tried

to explore. Accordingly more mothers (81.8%) in cases compared with 36.4% of those in control group believe any pregnant mother is potentially at risk of delivery complications likewise 80.5% of cases and 28.9% of controls consider them selves too potentially at risk of delivery complications. Further most of them 93.5% of cases and 60.7% of controls perceived delivery complications as a threat that can pose danger both to them selves and their babies, respectively.

Regarding the labour attendants' skill, care for laboring mothers and behavior of care providers, majority of respondents79.9% of cases positively perceived the skill of health workers compared with 32.1% of controls while 18.8% of cases and 11.75% of controls looks negatively. Similar portion of mothers 78.6% of cases and 31.85 of controls positively perceive the quality of delivery care provided at health facility. However, about 20.8% of cases and 12.3 % of controls negatively perceive the conduct of health workers toward labouring mothers and family while majority 78.6% of cases 32.5% of controls perceived positively as good.

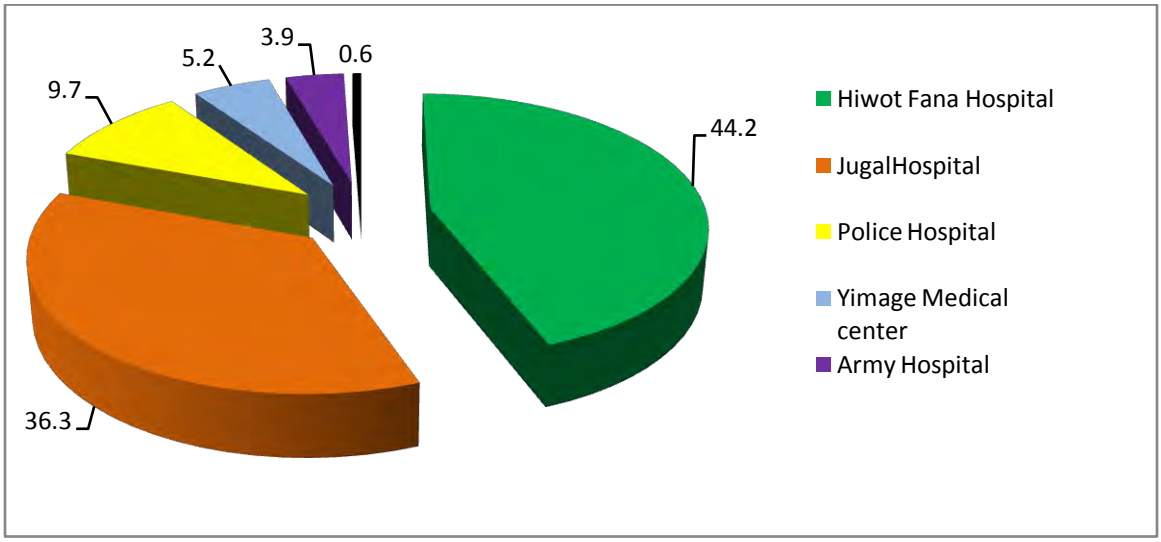

Fig: 03 Distributions of facilities utilized for last delivery in Harari Region, (n=154) March 2010.

Concerning place of delivery, almost all mothers who had their most recent delivery at health facility (n=154) gave birth in hospitals where government, Governmental organization and private hospitals accounts for 80.5%, 13.6% and 5.8 %, respectively.

Reasons behind the choice of place of their recent delivery also assessed both among mothers who had home delivery and institutional delivery. Accordingly reasons for majority of mothers who had their recent delivery at health facilities mentioned were; to avoid complication and to get better delivery care service. While few others mentioned because of health workers told them not to deliver at home for detail look at figure 4.

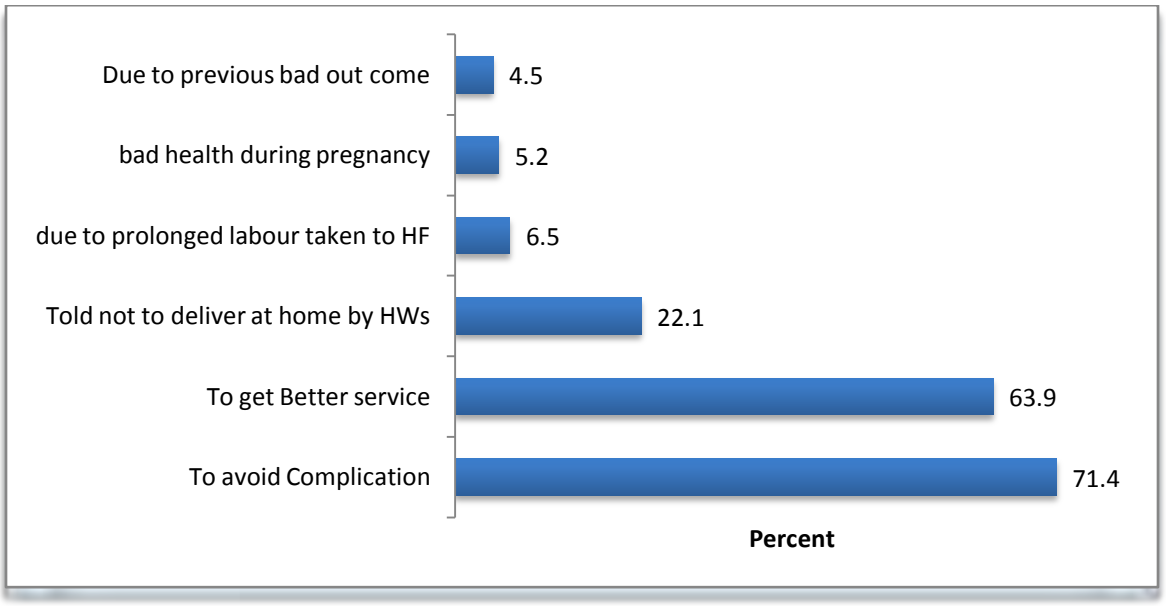

Fig: 04 Percentage of Respondents' mentioned reasons for institutional delivery utilization for last delivery in Harari Region, June 2010 (n= 154).

Similarly among mother who had their last delivery at home (n=308), majority of them mentioned the reason for choice of home delivery as due to smooth and short time of labour followed by due to previous better out come of home delivery while some other mentioned lack of transportation during night or due to bad road condition, lack of privacy and shortage of money to pay for the service. Yet some others said after they went to health facility health workers told them to come back when labour advanced after which they gave birth at home for detail look at figure 5.

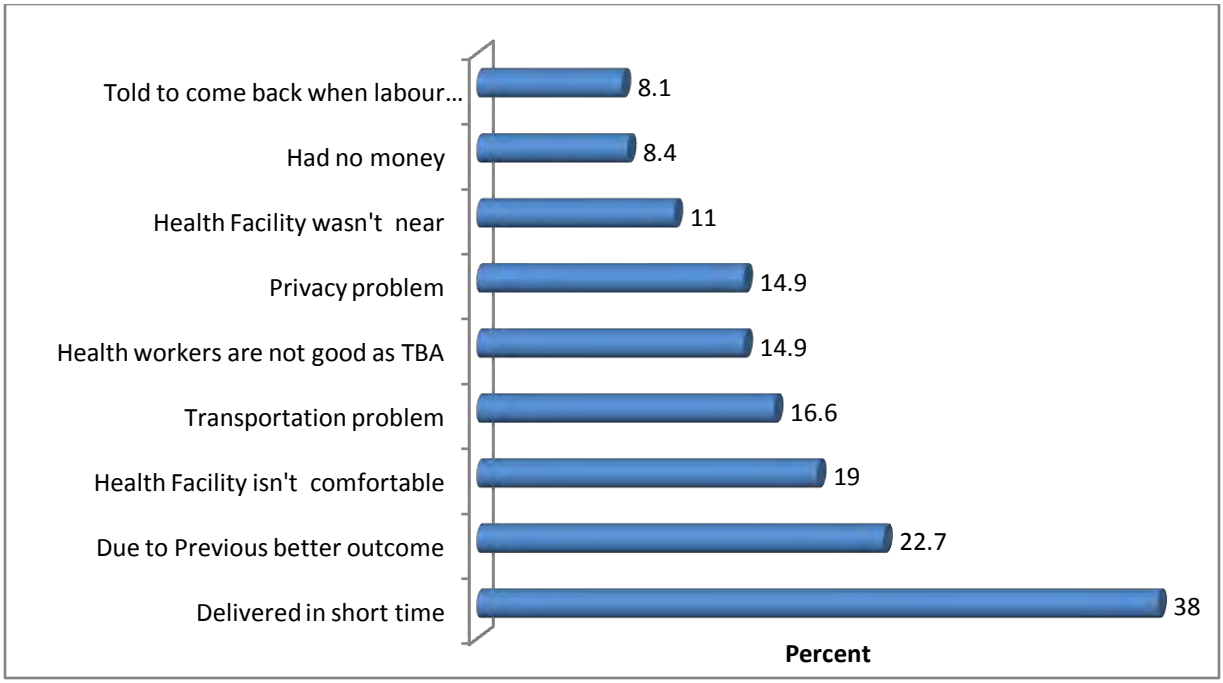

Fig: 05 Proportional distributions of respondents' reason for home delivery choice of last delivery in Harari Region, June 2010.

The decision role of mothers in family and society is another factor that may affect mothers' choice of place of delivery. Accordingly decision regarding delivery attendant and place of delivery was assessed, where majority of controls (64%) compared with case group 39.6% reported solo decision made by mother alone while 56% of cases and 33.4% of controls reportedly made decision with their husband regarding where a mother should give birth to. Similarly 53.9% of respondents among cases and 72.1% of controls made decision alone concerning who should attend them in labour while 42.2% among cases and 25% of controls involve their husband in decision of choice of labour attendants. However, a few (3%) of respondents didn't involved in decision of where to deliver and whom should attend her delivery at all it was decided by either husband alone or significant others with out involving mothers.

Table: 5 Previous delivery Service utilization and Decision role of respondents in Harari region, March 2010.

Variables	Category	Institutional delivery utilized		Total N (%)
		Yes= cases(154) N (%)	No= controls(308) N (%)	
Previous institutional delivery	Yes	66(42.9)	70(22.7)	136(29.4)
	No	13(8.4)	156(50.7)	169(36.6)
	Not applicable	75(48.7)	82(26.6)	157(34.0)
Received recent delivery service	Free	14(9.1)	0	14(3.0)
	Paid	140(90.9)	0	140(30.3)
	Not applicable	0	308(100)	308(66.7)
Delivery service fee	fair	92(59.7)	0	92(19.9)
	Not fair	48(31.2)	0	48(10.4)
	Not Applicable	14(9.1)	308(100)	322(69.7)
Who decided place of delivery during your last delivery	Mother alone	61(39.6)	197(64.0)	258(55.8)
	Mother& Husband	87(56.5)	103(33.4)	190(41.1)
	Others	6(3.9)	8(3.9)	14(3.1)
Who decided attendant of delivery during your last delivery	Mother alone	83(53.9)	222(72.1)	305(66.0)
	Mother& husband	65(42.2)	77(25.0)	142(30.7)
	Others	6(3.9)	9(2.9)	14(3.1)

Regarding delivery service utilization, among mothers (n=305) who had at least one previous delivery, 42.5% of cases and 22.7% of controls reported as ever had at least one institutional delivery experience. Among all cases (n=154) 91% of them received service by payment while 9.0 % received for free either by fee exemption paper from kebele or due to staff membership of police or Army. Among those who paid, 31.1% of them, reported the payment as unfair and only 31(22%) of them reported that they were able to pay themselves while the rest covered by husband, other relatives or friends.

5.5. Bivariate and multivariate analysis

5.5.1 Bivariate analysis

Logistic regression model was run using place of delivery as dichotomous dependent variables against independent categorical variables under Sociodemographic, obstetric and obstetric related knowledge, factors related to maternal perception of pregnancy and delivery related risks, providers, care provide role and her decision role in choosing place of delivery and labour attendant to determine their unadjusted effect. P-value less than 5% was considered to show statistically significant association. Further Crude odds ratio and 95% confidence interval considered to quantify the strength of association between independent and dependent variables.

5.5.2 Sociodemographic factors

Bivariate logistic regression singled out Age at marriage, religion, maternal and husband education, occupation and incomes valid institutional delivery predictors that have shown statistically significant association with institutional delivery utilization.

Mothers who had marriage at age of 20 to 35 years likely to use institutional deliver twice COR=2.2, 95% C.I = (1.5-3.2) when compared to those who had marriage at age less than 20 years. Religion is also another social factor that has shown significant association with institutional delivery utilization. Mothers from Christian background tend to use more COR=3.2, 95% C.I = (2.12-4.85) when compared to those with Muslim back ground.

Educational status is also another factor that play greater role on choice of place of delivery. Both maternal and husband education has shown significant association with institutional delivery utilization. Accordingly, mothers who had formal education more likely to use institutional delivery more than two and half time COR=2.7, 95% C.I, (1.47-4.90) and COR= 7.4, 95% C.I of (4.22-12.9) for elementary and secondary level respectively when compared with those who had no formal education.

Table: 6 Sociodemographic predictors of institutional delivery utilization of respondents in Harari region, March 2010.

Variables	Category	Institutional delivery utilized		Crude OR (95%CI)	Adjusted OR (95%CI)
		yes= cases(154)	No=controls(308)		
		N (%)	N (%)		
Mothers marriage age	< 20 years	78(50.6)	212(68.8)	1	1
	20- 34 years	75(48.7)	94(30.5)	2.2(1.5-3.2)*	1.4 (0.84-2.30)
	>= 35 Years	1(0.7)	2(0.7)	1.4(0.1-15.2)	1.0(0.41-26.3)
Mother education	None	25(16.2)	169(54.9)	1	1
	1-6th	29(18.8)	73(23.7)	2.7(1.47-4.90)*	2.0 (1.05 - 3.91)*
	7-10th	59(38.3)	54(17.5)	7.4(4.22-12.9)*	4.2 (2.16 - 8.04)*
	10th and above	41(26.6)	12(3.9)	23.1(10.7-49.8)*	5.8 (2.18-15.24)*
Religion	Moslem	80(51.9)	239(77.6)	1	1
	Christian	74(48.1)	69(22.4)	3.2(2.12-4.85)*	1.6 (0.97 - 2.73)
Occupational status	House wife	99(64.3)	249(80.8)	1	1
	Govt/Pvt Employee	31(20.1)	15(4.9)	5.2(2.7-10.05)*	1.9 (0.78-4.39)
	Merchants	17(11)	23(7.5)	1.9(0.95-3.63)	1.85 (0.82-4.19)
	Day Laborer	7(4.5)	21(6.8)	0.8(0.35-2.04)	0.9 (0.34-2.57)
Husband Education	None	10(6.5)	103(33.4)	1	1
	1-6th	15(9.7)	69(22.4)	2.2(0.95-5.27)	1.0 (0.4-2.66)
	7-10th	54(35.1)	86(27.9)	6.5(3.11-13.46)*	2.1 (0.89-4.97)
	Above 10th	72(48.4)	43(14)	17(8.1-36.55)*	2.9 (0.45-18.64)
Husband occupation	Day laborer	12(12.3)	87(28.2)	1	1
	Govt/Pvt Employee	98(63.6)	87(28.2)	5.2(2.91-9.16)*	1.5 (0.74-3.15)
	Farming	10(6.5)	86(27.9)	0.1(0.23-1.21)	0.6 (0.24-1.51)
	Merchants	22(14.3)	32(10.4)	3.1(1.51-6.57)*	1.3 (0.55-2.98)
	Unemployed	2(1.3)	9(2.9)	1.4(0.47-4.39)	
House hold income	less than 500ETB	24(15.6)	113(36.7)	1	1
	500ETB and above	129(83.8)	184(59.7)	3.3(2.01-5.41)*	2.4 (1.32-4.39)*

Husband education of secondary and more has shown high statistical Significant association with maternal institutional delivery utilization, COR= 6.5, 95% C.I= (3.11- 13.46) and COR=17, 95% C.I = (8.1-36.55) respectively when compared with those who had no formal education. Concerning maternal occupation status, government or privately employed mothers were more

than five times COR= 5.2, 95% C.I (2.70-10.05) likely used institutional delivery when compared to those who were house makers. Similarly among husband occupations private/ government employed and merchants has shown significant association COR=5.2, 95% C.I (2.91-9.16) and COR 3.1, 95% C.I (1.51-6.57) with institutional delivery utilization, respectively when compared with those who were day laborer.

Income was also another Sociodemographic variable that has shown significant association at maternal, husband and household level. Mothers who earns 500ETB and more nearly four times likely to use institutional delivery COR=3.9, 95% C.I = (2.10-11.83) when compared with those who earns none. Similarly mothers from house holds and husbands that earn 500ETB and more per month more likely to utilize institutional delivery than those earns less than 500ETB per month COR=3.3 95% C.I=(2.01-5.41) and COR=2.6, 95% C.I (1.60-4.20), respectively.

5.5.3. Obstetric factors and obstetric related knowledge

Among obstetric factors maternal age at first delivery, gravida, birth order, prenatal care utilization number and time prenatal care utilization started shown statically significant ($p<0.05$) with institutional delivery utilization.

Accordingly mothers who had their first delivery at age of 20 to 34 years has shown more than two fold utilization COR=2.2(1.43-3.29) when compared with those had their first delivery at age less than 20 years. Total number of pregnancy showed inverse relation with institutional delivery utilization. The more births a woman has had the less likely she uses health professionals for delivery. Those who had single and 2-4 pregnancy experience likely to use institutional delivery more COR=5.1(2.39-11.24) and COR=2.3 (1.06-4.85) respectively when compared with those who had 5^{+} pregnancy. Similarly institutional delivery utilization seem to decrease with increasing birth order, COR=5.6 (2.38-13.24) for first birth order and COR=2.4(1.04-5.62) for 2^{nd} to 4^{th} birth order when compared with 5^{th} and more birth order. Moreover mothers who had their most recent pregnancy planned, two and half time more likely to use institutional delivery

Table: 7 Obstetric factors and obstetric knowledge related predictors of institutional delivery utilization among respondents in Harari region, March 2010.

Variables	Institutional delivery utilized		Crude	Adjusted
	Yes=Cases(154)	No=Controls(308)	OR (95% CI)	OR(95% CI)
	N (%)	N (%)		
Mothers age first delivery in year				
<20	45(29.2)	145(47.1)	1	1
20- 34	108(70.1)	160(51.9)	2.2(1.43-3.29)*	1.2 (0.71-2.12)
>=35	1(0.6)	3(1.0)		
Total No. of pregnancy				
one	75(48.7)	82(26.6)	5.1(2.39-11.24)*	1.9 (0.19-18.73)
2-4	70(45.5)	175(56.8)	2.3(1.06-4.85)*	1.2 (0.29- 5.47)
5+	9(5.8)	51(16.6)	1	1
Birth order of last baby				
1st	75(48.7)	82(26.6)	5.6 (2.38-13.24)*	1.2 (0.12-14.10)
2 to 4th	72(46.8)	183(59.4)	2.4 (1.04-05.62)*	1.1 (0.22-5.66)
5th +	7(4.5)	43(14)	1	1
Last pregnancy planned				
Yes	119(77.3)	179(58.1)	2.5 (1.58-3.80)*	2.0 (1.14-3.65)*
No	35(22.7)	129(41.9)	1	1
ANC follow up for last pregnancy				
Yes	148(96.1)	224(72.9)	9.2(3.94 -21.78)*	4.0 (1.491-10.78)*
No	6(3.9)	84(27.3)	1	1
Total Last Pregnancy ANC visit				
Once	3(1.9)	13(4.2)	1	-
2-3	51(33.1)	125(40.6)	1.8(0.48-6.47)	-
4+	94(61.0)	88(27.9)	4.6(1.28-16.81)*	-
Last Pregnancy ANC Visit started in				
First trimester	37(24)	34(11)	1	-
Second trimester	90(58.4)	138(44.2)	0.6(0.35-1.02)*	-
Third trimester	21(13.6)	54(17.5)	0.4(0.18-0.71)*	-
Ever had Delivery complication				
Yes	28(18.2)	26(8.4)	1	1
No	126(81.8)	282(91.6)	0.5(0.23-0.94)*	0.4 (0.14-0.90)*
Previous Institutional delivery utilized				
Yes	66(42.9)	70(22.7)	1	1
No	88(57.1)	238(77.3)	0.4(0.26-0.59)*	0.5(0.33-0.87)*

- statistically significan

COR=2.5 (1.58-3.80). Prenatal cares also another important factor that seem determine choice of place of delivery.

Respondents who had ANC follow-up likely to use institutional delivery more COR=9.2(3.94 - 21.78) when compared with those who had no any ANC visit. However only respondents who had 4+ ANC follow shows significant association COR= 4.6 (1.28-16.81) when compare with those who had only one ANC visit. Moreover time ANC follow up started seems the earlier start the better institutional delivery utilization COR=0.6 (0.35-1.02) and COR= 0.3 (0.18-0.71) for 2nd and 3rd trimester, respectively compared with 1st trimester.

Regarding Obstetric knowledge, respondents who at least correctly mentioned one pregnancy related risks likely to utilize institutional delivery more COR=9.0(6.00-14.63). Similarly mothers who mentioned at least one pregnancy and delivery related danger signs more likely to use institutional delivery, COR=11 (6.85-17.46) and COR= 10 (6.85-17.46) for pregnancy and delivery related danger signs, respectively. Further more mothers who correctly mention risk associated with home delivery, COR=14 (8.83-24.69) and Benefits of institutional delivery COR=29(11.59-72.76) more likely use institutional delivery compared with those who do not. Moreover those who think delivery complication as preventable COR=3.6(2.42-5.45) and those who believe most of delivery complication as treatable OR=9.3(4.7-18.4) likely to utilize institutional delivery more.

In other way, it seems that mother who hadn't ever gave birth in health facility had 60% lower utilization of institutional delivery COR=0.4 (0.26-0.59). Concerning of status of women in decision role regarding the place of delivery and for labour attendants, mothers who involve husband in decision more likely to use institutional delivery more COR=2.7(1.82-4.02 and COR=2.3(1.49-3.42 for place of delivery and skilled attendant respectively, compared with those who made decision alone.

Table: 8 Obstetric risk perception, decision role and Obstetric knowledge related predictors of institutional delivery utilization among mothers in Harari region, March 2010.

Variables	Institutional delivery utilized		Crude OR(95%CI)	Adjusted OR (95%)
	Yes= Cases(154)	No= controls(308)		
	N (%)	N (%)		
Who decided place of delivery of last delivery				
Mother alone	61(39.6)	197(64.0)	1	1
Mother& Husband	87(56.5)	103(33.4)	2.9(1.82-4.02)*	1.7(1.89-2..58)*
Others	6(3.9)	8(2.6)		
Who decided attendant of last delivery				
Mother alone	83(53.9)	222(72.1)	1	1
Mother& Husband	65(42.2)	77(25)	2.3(1.49-3.42)*	1.6(1.01-2.59)*
Others	6(3.9)	9(2.9)		
All pregnant potentially at risk of delivery complications				
Yes	126(81.8)	112(36.4)	7.5(4.92-12.6)*	3.3(1.32- 8.12)*
No	28(18.2)	196(63.6)	1	1
You are potentially at risk of delivery complication				
Yes	124(80.5)	89(28.9)	10.2(6.37-16.3)*	3.9(1.6-9.37)*
No	30(19.5)	219(71.1)	1	1
Delivery complication might be dangerous to your life				
Yes	139(90.3)	177(57.5)	6.9(3.85-12.2)*	1.1(0.40-3.30)
No	15(9.7)	131(42.8)	1	1
Delivery complication might be dangerous to your baby				
Yes	144(93.5)	187(60.7)	9.3(4.71-18.4)*	2.3(0.88-6.29)
No	10(6.5)	121(39.3)	1	1
Know pregnancy related Health risks				
Yes	113(73.4)	70(22.7)	9.0(6.00-14.63)*	-
No	41(26.6)	238(77.3)	1	-
Know Danger signs of pregnancy				
Yes	123(79.9)	82(26.6)	11(6.85-17.46)*	4.7(1.5-14.78)*
No	31(20.1)	226(73.4)	1	1
Know Danger signs during delivery				
Yes	122(79.2)	89(28.9)	10(6.85-17.46)*	1.09(0.34-3.49)
No	32(20.8)	216(71.1)	1	1
Know Home delivery Risks				
Yes	132(85.7)	89(28.9)	14(8.83-24.69)*	2.7(1.28-5.52)*
No	22(14.3)	219(71.1)	1	1
Know Benefit Of Institutional delivery				
Yes	149(96.6)	156(50.6)	29(11.6-72.76)*	9(3.38-24.69)*
No	5(3.2)	152(49.4)	1	1
Birth Complication Treatable				
Yes	144(93.5)	187(60.7)	9.3(4.7-18.4)*	3(1.30- 6.86)*
No	10(6.5)	121(39.3)	1	1

* Statistically Significant

Maternal perception about the risk of delivery complications could pose to mother as well as to her baby was also another factor associated with delivery utilization. Mothers who consider any

pregnancy can pose potential risk for any pregnant mother including themselves were likely use institutional delivery more COR=7.5(4.92-12.61) for those who considered delivery complication as potential risk to any pregnant mother and COR=10.2(6.37-16.25) to themselves respectively.

Similarly those who think delivery complication could be dangerous to their life COR=6.9 (3.95-12.23) and their baby COR=9.3(4.71-18.40) respectively, likely to utilize institutional delivery far more when compared with those who didn't perceived delivery complication as potential risk to pregnant mother and their baby.

5.6 Multivariate analysis.

Multivariate logistic regression analysis used to yield adjusted effect of Sociodemographic variables, obstetric factors, obstetric knowledge, as well as factors related to delivery risk perception and women status in decision role concerning choice of place of delivery and birth attendants.

In general, majority variables OR shift toward one in multivariate logistic regression model except for a few. As a result all variables in Sociodemographic factors show no statistically significant association except for level of mother education and household income. Institutional delivery utilization has shown strong association with mothers who has secondary AOR=4.2 (2.16-8.04) and more than secondary level AOR=5.8 (2.18-15.24) when compared with those who had none formal education. Household income also remains strong predictor of institutional delivery utilization. Mother from household that earns 500ETB and more per month likely to use Institutional delivery more AOR=2.4 (1.32-4.39) compared to those who earn less than 500ETB. However maternal and husband income were omitted due to its possible interaction with household income.

Among obstetric factors planned pregnancy, ANC and ever experienced delivery complications remain strong predictors of institutional delivery utilization. Mothers who had planned delivery AOR= 2.0 (1.14-3.65) more likely to use institutional delivery when compared with those whose last pregnancy was unintended. Similarly those who had ANC follow up AOR=4.0(1.49-10.78)

more likely to use institutional delivery than those who had no follow up. Mother who had had no delivery complication AOR=0.4(0.14-0.90) less likely to use institutional delivery compared with their counter part.

Regarding obstetrics related knowledge, delivery service utilization seems higher among mothers who had knowledge of pregnancy related danger signs AOR=4.7(1.5-14.78), Risk of home delivery AOR=2.7 (1.28-5.52) and know benefit of institutional delivery AOR=9(3.38-24.69). In the same way, mothers who never had had institutional delivery less likely to use AOR= 0.5 (0.33-0.87) institutional delivery compared with those who had previous institutional delivery experience. Facility delivery utilization also seems higher among mothers who decide their place of delivery AOR=1.7 (1.89-2.58) and birth attendant AOR= 1.6 (1.01-2.60) with their husband than alone. Among variables used to assess maternal delivery complication risk perception, institutional delivery remain significantly associated with mothers who believe any pregnant mother is potentially at risk AOR=3.3(1.32-8.12) and consider them self also potentially at risk AOR=3.9 (1.60-9.37) of delivery complications.

5.7 Qualitative Result

Qualitative study was conducted as complementary to quantitative study to identify factors behind low utilization of maternal health especially institutional delivery. Totally four managers from Regional Health Bureau and four maternal health care providers from two government hospitals namely Hiwot Fana and jugal Hospitals as well as two other health centers namely Jinela and Aratenya Health Centers were included.

Professionally the health workers constitute one physician, one Health Officer, two BSc Nurses and two diploma level midwife and nurses. From community mothers who had delivery in the last two years, who had institutional delivery and home delivery five from each, a total of ten mothers were also included.

The key informants' interview was conducted at working area for health care providers and managers while for mothers conducted at their living area. The interview was recorded by audiotape and short notes. Finally the data was transcribed into hard copy which then translated

into English. The interview was analyzed manually following the question layout by coding for paragraphs in which to be included and finally organized.

In general the question focus on maternal health status in the region, reason for poor maternal health, factors that affect institutional delivery utilization, problems related to care and providers. Additionally maternal knowledge of pregnancy and delivery related danger signs also included. Generally all health care providers, managers agree that maternal health condition is as poor despite of better health facility distribution when compared with some neighboring regions. Almost all providers and mangers mentioned prolonged or obstructed labour, intra partum and post partum bleeding, pre eclampsia/eclampsia, fistula, anemia, malaria, abortion and sepsis as the major causes of maternal morbidity and mortality in the region.

Regarding contributing factors, majority of them believe poor or lack of awareness of maternal service, economic problem and transportation especially for mothers in rural and outskirt of the town as factors contribute for poor maternal health status. But almost all stress lack of awareness of mothers, family and community about the risk of pregnancy and delivery related complications as the main challenge. One of female care providers among key respondents said;

"...the great challenge is misconception among mothers and family about risk of pregnancy and delivery complications. Many mothers that have had or witnessed normal home delivery consider themselves free and safe of risks.... that leads to lower utilization of institutional delivery, but that is not always true as each delivery condition out come can not be predicted."
Another key informant also affirms as family attitude and perception influence mother's decision about their health.
"... Family members sometimes deny mothers even blood donation to save their lives. I remember a mother from remote rural area that had c/s in our hospital, she was told not to deliver subsequently at home, but came alone because her husband and family refused to accompany her However that woman had c/s delivery for the second time. There are a lot of such cases where mothers cannot do any thing for themselves as a result of which they loose their life."

Economic status of mothers and house holds also another factors that majority of them believe play role in restricting mothers access to maternal health care.

"... there are mothers who can not afford service fee even if delivery cost for service is low compared with private, but indirect cost and other fees of Laboratory investigation, drugs and service for instrumental and c/s is fairly high for poor mothers. Probably that is why most ANC attending mothers don't come back for Institutional delivery."

Some of key informants among care providers also implicated as physical access, some traditional and religious outlook and bad rumors about health provider and facility also posing negative impression on attitude of mothers, as discouraging mothers from using maternal care especially delivery service.

Some of key informants among health workers believe that they are providing quality safe delivery care as much as possible but those from hospitals claim as work overload, shortage of supplies and poor infrastructure hampering the care they were providing especially shortage of midwifes and obstetricians. Moreover they complain as health centers and health post referring to Hospitals normal delivery which they were supposed to manage. Similarly health workers from health centers acknowledge the problems, expressing as their facility were new and not yet fully functional and also partially due to shortage of midwife, drug, equipment, supply and water made them refer laboring mothers to hospitals.

Finally Providers recommend the following measures to promote institutional delivery:

- More expansion of Health facilities to rural, staffing and equipping existing ones,
- Continuous supervision, training of TBA and health Extension workers in Safe delivery,
- Continuous information and education communication by all possible means to change mothers, family and community awareness toward safe delivery ,
- Exemption of delivery fee for all Mothers
- Encouraging community on Blood donation to support EMNOC. As way out to improve maternal health condition.

As health providers, mothers also agree maternal condition as poor, but they enumerate the causes as domestic work load, too much and too short spaced birth, poor economic status and

mothers lack of her voice in family and community, poor nutritional status and male dominance over resource as factors limited their access to health care.

Although all mothers wanted to deliver at health facility, but a lot of them giving birth at home, due to different problems mainly pertain to lack of awareness, lack of transportation especially during night, unattractive care and hospital environment, unwell coming staffs, lack of money during labour, family influence to deliver at home from elderly mothers, fear of hospital environment, sudden and short time of labour as challenging problems forced mothers to deliver at home. A key informant from mothers said;

"... giving birth at hospital is good both for mother and baby but health facilities are not attractive, hospital cleanliness is not good, the service as well not what you expected... for mothers can afford private became good option otherwise many mother determine to give birth at home regardless of the risk."

Even though there are some mothers who praise the effort and commitment of health providers yet some sharply criticize for provider's skills, conduct and lack of commitment. A mother expresses the situation like this; *"...we go to hospitals to avoid bleeding and death but when you go there things are different ... Dr and senior staffs may see and leave you to students. If you complain some may insult you or even may beat you."*

Another key informant also said;
"...During night you can not get taxi. Red cross ambulance usually may not available on time, after you get to hospital getting service on time is unthinkable... some times you are told health workers are not around."
Some also mentioned privacy as another problems, complain unnecessary exposure of private part to many students, and allowing many students practice of pelvic exam without their will as the source of discomfort that cause some to avoid institutional delivery. More over some mothers also raises serious concern over providers' skills, saying;

"One of my neighbors told as she won't have normal delivery during her ANC follow up... and when she went for delivery to hospital. They cut her bottom and left her in effort to deliver normally for a long time, until she became weak after which her mother shouted for help thereafter they admitted her to operation. Eventually her life was spared, but she lost her baby some thing would have not happen...."

Majority of mothers also recommend the followings as measures to improve care for mothers:

- Equipping and staffing their nearby newly built health centers by concerned body
- Asks providers to keep their promise and remain committed to help mothers
- Demand strong supervision and monitoring on professionals inclined toward their own clinic abandoning their duty.
- Giving mother all necessary information and care to those who visited or came to health facility as necessary

5. Discussion

This study tried to identify factors affects utilization of institutional delivery in Harari region. As institutional delivery is an entry point to get professionally assisted delivery which could be the base to avoid birth related complication impact both for mothers and their baby too.

Though many studies has indicated distance from health facility as one of the barrier to access institutional delivery where urban mothers likely to use more than rural residing mothers (23, 24, 25 and 26) this study carried out in a place under primary health care and hospital coverage due to logistic purpose, and there for didn't consider the effect of physical distance.

However, a number of other Sociodemographic characteristics of respondents found to affect the underlying tendency of seeking institutional delivery. Accordingly many studies find maternal age as one of the factor that affect the choice of place of delivery (5, 13, 29and 36) but it is not found to be associated with institutional delivery utilization in this study, this might be due to confounding effect of total pregnancy and no of parity with mother age at recent delivery shown significant association with both X^2=56.69, (P<0.0001) and X2=67.75 (P<0.0001) respectively.

Religion and ethnic back grounds were another factors found to affect maternal choice of place of delivery but its effect disappeared in adjusted analysis. This study found that mothers from Christian likely to use institutional delivery more than Muslim and Oromo ethnic back ground. This finding is consistent with study in Nigeria (27) and Ethiopia (25) but quite different from studies conducted in Ghana (21) and Indonesia (17). This could pertain to confounding effect of educational back ground of mothers which has shown statistical significance religion X^2= 83.99 (P<0.0001), where respondents from Christian back ground had better educated mothers.

Maternal education found to be strong independent factors that determine institutional delivery utilization where secondary or more educated mothers found to utilize institutional delivery service nearly six times more than those who have none formal education. This study is consistent with finding from Ethiopia (5, 16) and similar other studies reported from Bangladesh

(40, 41) but higher than study conducted in Bencho Woreda(26).Though husband education also has shown significant association in Bivariate analysis its effect disappeared in adjusted model

Maternal occupation also found to be associated with institutional delivery utilization in Bivariate analysis, where employed mothers more than five times likely utilize institutional delivery than house making mothers which could be due to direct relation of employment with income that may play role as enabling factor by increasing purchasing power and decision role of mothers.

Several studies have shown income as one of the vital factors exerts great impact on capacity of financial access to maternal care utilization. This study single out house hold income status as independent determinant factor. It indicated the higher the income, the more likely mother utilize institutional delivery. This finding is inline with many other studies conducted in Ethiopia (16) and other similar study carried out in Rwanda, Indonesia, Ghana and Tanzania (13,17,35 and 38). Though maternal and husband income shown significant relation under Bivariate analysis but the effect disappeared in multivariate analysis which could be the confounding effect of mothers' education X^2 =81.25, (P<0.0001).

Antenatal care service provides an opportunity for health promotion, prevention, screening and monitoring of maternal health problems and helps to arrange for planned delivery (1, 7). Accordingly prenatal care found to be one of strong independent predictor of institutional delivery utilization where mothers attended ANC more than four times likely use institutional delivery when compared with those who have none. Despite the significant association of number of ANC visit (4+) and time of ANC commenced, due to their interaction with ANC attendance excluded from multivariate analysis. This finding is found to be consistent with a number of studies (9,13,17 ,22 and 37) this can be related to opportunity of exposure of mother to pregnancy and delivery related information and counseling that interact with risk perception of mothers and determination of mother to have safe delivery.

Total pregnancy experience of mothers and birth order are another factors found to influence the use of institutional delivery where both shows inverse relation with institutional delivery care utilization. This study indicated as total number of pregnancy and birth order increase the likely to use institutional delivery decrease. This finding is similar with finding from Ethiopia (16, 26, and 27) and other studies conducted in India (36). It seems mothers who has low birth order and pregnancy are inexperience of pregnancy and delivery process hence fear and concern for out come made them seek for professionally assisted delivery while multiparous mother who have had deliveries with normal outcome become confident with labour process that decrease their demand of seeking assisted delivery. This idea is reflected by response of one of female care provider in during qualitative assessment by saying;

".... Many mothers that have had or witnessed normal home delivery consider themselves free and safe of risks.... that leads to lower utilization of institutional delivery...." and Similarly among mothers who had their last delivery at home (n=308), 22.7% of them justified previous good out come after home delivery utilization.

Planned pregnancy and previous delivery related complication remained strong independent predictors during Bivariate and multivariate analysis. Mother whose delivery was planned likely to use institutional delivery more than two times when compared with those whose pregnancy wasn't planned. This might be related to the motivation of mother to care and prepared for would be coming planned baby. This finding is consistent with other studies in Ethiopia (26, 27)

Similarly Mothers who had delivery complication more than two folds likely utilize institutional delivery this can be relate to the need to avoid similar bad out come. A number of studies have shown similar findings (16, 17, 27,). This finding is supported by reason of institutional delivery utilization from (n=154) mothers who had their last delivery at Facility 71.4% said to avoid delivery complication. Key informants also gave similar reason.

Previous institutional delivery utilization found to be another strong independent predictor to choice of place of delivery, women previously had facility delivery experience likely to use more than two times when compared with those who had no any institutional delivery experience. This

finding is consistent with other study (26). This relation might be due to mother's better awareness about service and familiarization with institutional set up and providers, encouraged to use more ,however, the relation also can be confounded by perceived benefit of institutional delivery which has shown strong relation with institutional delivery X2=48.21 (P<0.001).

Maternal knowledge could be of the underlying cause for maternal choice of institutional delivery (39). This could be due to its relation with level of awareness and decision making power of mothers (30). This study finds out knowledge of pregnancy related risk as determinant factor that affect institutional delivery. mothers who has knowledge of delivery related risk found to utilize more than eight times compared with not mentioned any risk. This finding is supported by finding from qualitative part as majority health workers and mothers mentioned maternal awareness as major factor behind the choice of place of delivery.

Delivery related danger signs are also another determinant factor for institutional delivery though its significance disappeared in adjusted analysis. However, knowledge of pregnancy related danger sign found to be an independent predictor for institutional delivery utilization, mothers who had mentioned at least one pregnancy danger sign found to utilize institutional delivery more than four times. Similar finding reported from other studies (27, 34) but the proportion of respondents who correctly mention danger sign of pregnancy is lower among mothers in Harari region. This might be related to the difference of information and counseling during prenatal care.

Knowledge of Home delivery risk and the benefit of institutional delivery found among strong independent determinant factors, where mothers who correctly mentioned health risk that mother can come across during home delivery and the merit of giving birth at health facility two to five times more likely use institutional delivery. This could be due to attitude of risk avoidance and perceived benefit of institutional delivery encourage mother to use institutional delivery more. This finding also supported by qualitative finding where most mothers said they preferred institutional delivery to avoid home delivery complications and get better delivery care at health facility.

Mothers' knowledge whether delivery complication is preventable or treatable with appropriate care also found to determine facility delivery utilization but their effect disappeared in adjusted model. Mothers who believe birth complication is preventable or treatable likely to use many more times than their counter part. This could be due to positive perception and awareness of benefit of institutional delivery.

Almost all mothers who have had their most recent delivery in facility gave birth in hospitals where government hospitals account for 76.5%, governmental organization and private hospitals accounts only for14.9% and less than 5% respectively. No a single mother reported health center and health post utilization in the catchment. This unbalanced service utilization would have created workload on hospitals leaving out health centers and health posts under utilized that would have given mother opportunity to get care in their nearby centers. Further more under utilization of private facility might be due to the high cost of care that made majority of mothers preferred government facility. Key informants from hospitals reported as unnecessary referral of normal laboring mother from primary health care units created burden on hospitals and subjected mothers for additional indirect costs.

This study also indicated the major reasons of mothers to give birth in health facility were "to avoid delivery complication" 71.4% followed by "to get better care than home delivery" by 63.9% and because of counseled by health workers to deliver at facility 22.1%. Qualitative study also indicated similar result where a mother expressed by saying...

"...we go to hospitals to avoid bleeding and death but when you go there things are different ... Dr and senior staffs may see and leave you to students. If you complain some may insult you or even beat you."

On the other hand, mothers who gave their most recent delivery at home gave reasons behind their choice of delivery as short duration and smooth labour by38%,previous good out come of home delivery 27.7%, Home is more comfortable 19% , privacy and transportation absence especially during night 14%. This finding is also supported by qualitative assessment and finding from other studies conducted in Ethiopia (16, 26).

Some Studies have shown mother's status in the family affects her decision making role, mothers who are empowered to make decision are more likely to use institutional delivery (21, 30). However in this study mothers who make decision alone regarding place of delivery and birth attendant likely to have lower utilization compared with those that make decision with their husbands. Some studies also have shown the effect husband involvement in decision increase mothers likely use of institutional delivery. According to some studies mothers' perception and attitude about health facility and health providers play role in influencing mother's preference of facility delivery, (5, 33, 38) though key informants complain problems related to skill of provider, quality of care and conduct of providers, this study finds no significant association.

6.1 Strengths and limitations of the study

6.1.1 Strengths

- The community based case control is more appropriate to study multiple factors to single out come.
- Data collectors being same sex, having good knowledge of data collection area and local languages
- Absence of non-response
- Combined quantitative and qualitative assessment to triangulate the findings

6.1.2 Limitations of the study

- Finding may not be fully reflects rural areas far from facility
- Since the data is retrospective based on past events recall bias can not be ruled out
- Since data collectors were health workers information bias is also possible

7. Conclusions and Recommendations

7. 1. Conclusions

Factors affecting institutional delivery are diverse and interrelated at individual, family and community level. Mothers' education and household income are found to be strong predictors of institutional delivery.

ANC follow up, planned pregnancy, previous obstetric related complications and previous facility delivery utilization are also strong independent predictors among obstetric related factors.

Among obstetric knowledge related factors; Knowledge of danger signs, risk of home delivery and benefit of institutional delivery were among strong predictors of institutional delivery utilization.

Similarly husbands' involvement in Decision of choice of place of delivery and birth attendant, and maternal delivery complication risk perceptions were predictors of institutional delivery utilization.

Furthermore teenage pregnancy and grand multiparty were found to be as high as 41% and 13%, respectively. About 35.5% mothers reported their last pregnancy was unplanned and almost all mothers who gave their last birth in facility used government hospitals. Generally pregnancy and delivery related knowledge was low.

7.2. Recommendations

Based on the findings the following points are recommended

a. Policy and strategy implications
    - Promotion of Women/girls education is a crucial measure to enhance maternal health status including safe delivery utilization if included in school curricula
    - Mass media based education regarding maternal health can communicate safe motherhood to community at large.
    - Income Generating Activities in line with poverty reduction strategy should be promoted to improve women and household income.
    - Maternal Health Care especially delivery fee exemption may improve facility utilization for poor families and mothers.

b. Implication to the health system
    - Promoting Health Extension programs especially urban Health extension services can create a good opportunity to book pregnant mothers, give home and community based education and home delivery and post natal service.
    - ANC and delivery care if given in mother friendly manner may affect the attitude of mothers and family and encourage facility utilization.
    - All information related to obstetric risks, danger signs, home delivery risk and benefit of institutional delivery should be part of health information, education communication and counseling.
    - Health information and education should be based on perception and behavioral change communications.
    - Improving Family planning information and service access to all mothers can reduce unintended pregnancy.
    - Expansion of facility delivery service by staffing and equipping Primary health care units to address the need of mothers
    - Linking of TBA, TTBA community Health agents, mother and community support group with near by facility.
    - Proper referral linkage between hospitals and primary health care units
    - Strong and continuous supportive supervision and, monitoring of institutional delivery services are recommended

c. Implications for communities

- Mothers support group should be organized and promoted to create/improve awareness on safe, planned pregnancy and delivery
- Community should be supported and encouraged to improve mothers status and their role in society
- Training and organizing community health agents on pregnancy care and need of safe delivery service

d. Further Research implication

- Quality of maternal care including providers and clients prospective need to be explored in a greater detail.
- Further similar study on distant rural community to see relevance of factors identified by present study.

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Addis Ababa University, Faculty of Medicine, School of Public Health Structured Questionnaire for face-to-face interview on institution Delivery Utilization Among mothers in Harari region

Annex II: Information sheet

Good morning/Afternoon,

My name is ----------. I am post graduate student at Addis Ababa University. I am conducting a research project with title; 'Assessment of factors affecting utilization of institutional delivery among women of childbearing age in Harari region.' It is intended to identify factors that determine institutional delivery utilization. The study will be conducted in Hara town during January to February 2010. Involvement in the study will be based on full voluntary participation. Any participant has full right to deny or withdraw from participation at any time. The confidentiality and privacy of data and participant will be maintained. Any information that will be obtained will be used according to participants consent. Respondents' name and response will not be reported individually. However, the general findings can be used for academic, programmatic or service delivery improvement purposes.

For further information, clarification or questions it is possible to contact principal investigator at any time by the following address:

- *Name Abdi Beker*
- *Tel. 0911 80 61 42 or 0915 733204*
- *e-mail abdibeker@yahoo.com*

Annex III: Verbal consent form

This study is proposed to assess factors affecting institutional delivery utilization; you have been chosen randomly to participate in this study. The purpose of this study is to generate information on future service provision or designing of an appropriate intervention. In order to attain the goal we ask you to provide us with genuine information. Your name is not required and no individual response will be reported. It is your full right to refuse any or all of the questions. However, I kindly ask you to participate.

N.B: - Proceed only if agreed otherwise go to next house/mother!

- *Interviewer Name*_____
- *Signature*_____
- *Interviewee Name*_____
- *Signature*_____

Annex IV: Assent form

This study is proposed to assess factors affecting institutional delivery utilization; your daughter has been chosen randomly to participate in this study. The purpose of this study is to generate information on future service provision or designing of an appropriate intervention. In order to attain the goal we like to collect genuine information from participants. The name of your daughter is not required and no her individual response will be reported. Moreover, her full right to refuse any or all of the questions will be maintained. Therefore, I kindly ask you to let her to participate in the study.

N.B: - Proceed only if agreed otherwise go to next house/mother!

- *Interviewer Name*_____
- *Signature*_____
- *The parent/guardian Name*_____
- *Signature*_____

Annex V: Questionnaire

Part I: Sociodemographic Characteristics of mothers

No.	Question	Coding	
100	What is your current age in completed years?	0= <20 1=20-34 2= > 35	
101	What is the highest grade you completed?	0= None 1= 1-6 2= 7-10 3= 10+	
102	Which religion do you follow?	0= Orthodox Christian 1= protestant 2= Catholic 3= Islam 4= other, specify	
103	To which ethnic group do you belong?	0= Amhara 1= Oromo 2= Harari 3= Gurage 4= Tigre 5= Somali 6= Other, specify	
104	What is your occupation?	0= Housewife 1=Govt Employee 2=Private Employee 3= Merchant 4= farmer 5= other specify ----------	If Housewife skip to question 106.
105	How much do you earn per month in ETB from this particular employment?	0= upto100 1= 101- 500 2= 501-1000 3= > 1000	
106	What is your current marital status?	0= single 1= married 2= divorced 3= separated 4= widowed	
107	How old were you at your 1st marriage in completed years? ----------	0= <20 1= 20 – 34 2=>35	Except for singles
108	What is the highest grade your husband	0= None	

	completed?	1= 1-6 2= 7-10 3= 10+	
109	What is your husband's current occupation? Ask only for currently married.	0= Unemployed 1=Govt Employee 2=Private Employee 3= Merchant 4= farmer 5= other specify	If unemployed, skip to question 111.
110	How much does your husband earn from this work per month? Ask only for currently married.	0= upto100 1= 101- 500 2= 501-1000 3= > 1000	
111	How much is your total household income per month in ETB	0= upto100 1= 101- 500 2= 501-1000 3= > 1000	

Part II. Obstetric history and service related

No.	Questions	Code	skip
201	How old were you at your 1st pregnancy? ----------	0= <20 1= 20 – 34 2=>35+	
202	How old were you at your last pregnancy? ----------	0= <20 1= 20 – 34 2=>35+	
203	How many times you have been pregnant in your life. ----------	0= 1-2 1= 2-4 2= 5^{+}	
204	What were the outcomes of the pregnancies? (Ask for each item and put numbers on the space Provided.)	0.Total live birth------- 1. Abortion ---------- 2. Still birth---------- 3. Died within seven days---------- 4. Died b/n 7days and one year---------- 5. Live birth survived to>1yr---------- 6. Other specify----------	
205	When was your last pregnancy? ----------		
206	Was your last pregnancy planned?	0= no 1= yes	
207	Did you receive antenatal care for your last pregnancy?	0= no 1= yes	Skip 213
208	At what month did, you started ANC check up.		

209	How many times did you visit during last pregnancy? ----------	0= 1 1= 2-3 2= 4+	
211	Where did you deliver your last baby?	0= home 1= Health facility, specify----------	if HF 216
213	Why do you prefer to deliver at home? (Ask for those delivered at home only.) More than one response is possible	1. HF was near to me 2. Need Better service 3.Previous better out come with delivering at HF 4. I wasn't told to deliver at health facilities 5. Difficult labor 6. Bad outcome with previous delivery 7. Other, specify-----	
214	Why you prefer to deliver at Health facility? Ask for those delivered at health institution	1.HF was near to me 2. Need Better service 3. Previous better out come with delivering at HF 4. I was told to deliver at health facilities 5. Difficult labor 6. Bad outcome with previous delivery 7. Other, specify-----	
215	What was the mode of your last delivery?	0= SVD 1=assisted delivery, specify 2= C/S	
216	Who assisted your last childbirth?	0= relative specify 1= TBA 2= TTBA 3= Health professional 4= other, specify----------	
217	What was the condition of your last baby?	0= good 1= bad 3= dead	
218	Did you encounter any health problems during Labor or immediately following your last delivery?	0= no 1= yes	
219	If yes, what was/were the problems?	Specify----------	
220	What measures were taken to alleviate the problem?	Specify----------	
221	Were you taken to HF? Only for home delivery	0= no 1= yes	
222	Which transport you used to reach to the health facility?	0= private 1= Ambulance 2= other, specify----------	
223	Where were you taken?	0= Clinic 1= H/C 2=Hospital	
224	Are you pregnant now?	0= no 1= yes	

225	If yes, what is the age of the pregnancy in month? ----------	0= 1st trimester 1= 2nd trimester 2=3rd trimester	
226	Have you started ANC follow up?	0= no 1= yes	

Part III Maternal and Household factors: Knowledge, perception/attitude, social impact on health facility, service provider and decision to use or not use institutional delivery

No.	Questions	Code	Skip
Knowledge questions			
301	Do you know any health risks a woman might face during pregnancy?	0= no 1= yes	
302	If yes to ques. 301, what are the risks? Specify---------- ----------		
303	Do you know any danger signs of pregnancy?	0= no 1= yes	
304	If yes, mention that you Know. _____		
305	Did you experience any of the danger signs during Your last pregnancy?	0= no 1= yes	
306	If yes, what action did you take? Write as much as they answered;		
307	Do you know any danger signs of labour?	0= no 1= yes	
308	If yes, what are those danger signs you know?	Write all they answer;	
309	Do you think giving birth at home has risks?	0= no 1= yes	
310	If yes, mention those risks you know.	Write detail	
311	Do you know any benefits of giving birth at HFs?	0= no 1= yes	
312	If yes, what benefits do you know?	Write detail.	
313	Are health problems arises during labor are preventable?	0= no 1= yes	
314	Do you know most complications of Labour are treatable?	0= no 1= yes	
	Perception questions		
401	Do you think Any pregnant woman is susceptible to face delivery complications?	0= no 1=yes	
402	Do you feel you are susceptible to any delivery complications?	0= no 1= yes	

203	Do you think delivery complication can be hazardous to your health/ life?	0= no 1= yes	
404	Do you think delivery complications can be severe to harm your baby?	0= no 1= yes	
Health Facility, service and providers related questions			
501	Have you ever given births at HFs?	0=.No 1=.yes	
	If yes, which delivery? ----------	0= 1, 1=2-4 2=5+	
502	If yes 501, did you satisfied with service you received.	0=No 1= Yes	
503	If no, Why? ----------	Write detail reasons.	
Only for those who gave their last delivery in Health Facility			
504	How did you receive the services?	0= free 1= payment	
505	If you received on payment, how much did you pay for delivery service? --------ETB		
506	Were you able to pay for the services?	0= no 1= yes	
507	If no, how did you cover the cost	Write details	
508	Do you think the payment was fair?	0= unfair 1= fair	
For all Mothers			
509	Who decided the place for your childbirth?	0= self 1= with husband 2= husband alone 3= others	
510	Who decided who would assist while you deliver baby?	0= self 1= with husband 2= husband alone 3= others	
511	How do you see skill of health workers there on assisting you on delivery?	0= not good 1= good 2= don't Know	
512	How do you feel the way they treated you?	0= not good 1= good 2= don't Know	
513	How do you see their behavior?	0= not good 1= good	

Annex: VI Interview Guide Questions for key informants

A. For Providers and managers

1. How do you see the status of maternal health service in Harari region?
2. What are the causes of maternal morbidity and mortality in the region?
3. How do you see the status of delivery care utilization at health institutions?
   - At Hospitals, HCs, HPs and
   - At community level? Attendants at community (TBA, TTBAs)
   - Utilization patterns

6. In your opinion what are the most important factors that affect delivery?

- Staffing
- Equipments, supplies, drugs, infrastructures
- Staffing (skill, behavior, commitments) and
- Quality of care, technical assistance, supervision?
- Transportation problems
- Service fee, for user unable to afford?

7. What actions have you been taking to promote institutional delivery?

- Human resource development
- Health Facility construction, expansion, renovation
- community awareness creation
- Level of collaboration b/n HWs,TBA,TTBA and HEWs

6. Where do women in your area prefer to deliver?
   - Home, health facility, Why?
   - Whom they prefer for attendance?
7. How do you promote safe delivery service utilization in your area?
   - Community mobilization, use of HEWs, TBAs and Service expansion,
9. What do you think should be done to improve maternal health in general?

B. Key informant of mothers

1. How do you see maternal health status in your area/ locality?
2. What are the commonest causes of maternal sickness/death during pregnancy and delivery?
3. What factors contribute for poor maternal health in your area?
4. How pregnancy and delivery do affects mothers and new born health?
5. Where do most women seek help during pregnancy and delivery? Why they prefer...?
6. What are the main obstacles in your family/area that prevent mothers from accessing and utilizing maternal health?
7. What do you know pregnancy/delivery related health risks?
8. What do you/ women do if they face such problems?
9. Where do/you/ women prefer to deliver? Why they prefer...?
10. What do you think the reason for choosing home delivery?
11. What do you think the reasons for choosing facility delivery?
12. What make mother to choose either home or facility delivery?
    - Family member/community/cultural practice
    - religion
    - husband
    - money
    - transport
13. What do you think about delivery service given at health facility?
    - Available ,accessible, transport
    - Price
    - time of service
    - Medication
    - Quality
    - Privacy

14. What do you think about the providers?

- Staffing
- presence
- skill
- behavior

15. What do you think should be done to improve maternal health in general?

- at family level
- at community level
- as health facility level

Annex VII: Amharic Version

በአዲስ አበባ ዩኒቨርሲቲ፤ የሕክምና ፋክልቲ፤ የህብረተሰብ ጤና ሳይንስ ት/ቤት

በሕክምና ድርጅቶች፤ ስለወሊድ አገልግሎት አጠቃቀም በተመለከተ እናቶችን ለመጠየቅ

የተዘጋጀ መጠይቅ፡፡

1 የመረጃ ቅጽ፤

ጤና ይስጥልኝ! ስሜ---------- እባላለሁ፡፡ በአዲስ አበባ ዩኒቨረሲቲ የድኽረ ምረቃ ተማሪ ነኝ፡፡ ይህ ለድህረ ምረቃ ጥናት እያካሄድን ነው፡፡ ጥናቱም ስለ እናቶች በጤና ድርጅት የሚሰጠዉን የወሊድ አገልግሎት አጠቃቀም ይሆናል፡፡ ዓላማውም እናቶች የወሊድ አገልገሎት አጠቃቀም ምን እንደሚመስል ማሰስ ይሆናል፡፡

ጥናቱ የሚካሄደው እዚሁ በሐረር ከተማ ውስጥ ከጥር እስከ የካቲት ወር 2002 ዓ.ም ይሆናል፡፡

ጥናቱ ተሳታፍ ያለምንም ተጽዕኖና በፍቃዳቸው ይሆናል፡፡ማንኛውም በጥናቱ ተሳታፍ ጥያቄዎቹን በከፊልም ሆነ በሙሉ ያለመመለስ መብቱ የተጠበቀ ነው፡፡የተሳታፊ ስም በማንኛዉም መልኩ አይገለጽም፡፡ የጥናቱውጤት በጋራ እንጂ በተናጥል አይገለጽም፡፡ ውጤቱ ለትምህረታዊ አላማ ወይም የጤና አገልገሎትን ለማሻሻል ልተቅም ይችላል፡፡

ለተጨማሪ መረጃ፤ጥያቄ ወይም አስተያየት ጥናቱን የሚያካሂደውን በሚከተለው አድራሻ በማንኛውም ጊዜ ማግኘት ይቻላል፡፡

- **አብዲ በከር**
- **የስ.ቁ.** 0911 80 61 42 **ወይም** 0915 73 32 04
- **ኢ.ሜይል**: abdibeker@yahoo.ccom

2. የእናቶች የተሳትፎ ስምምነት መግለጫ ቅጽ፤

ለእናቶች በጤና ድርጅት የሚሰጥ የወሊድ አገልገሎት በተመለከተ ጥናት እያካሄድን ነው፡፡እርስዎ ይህ ጥናት ውስጥ ተሳታፊ ይሆኑ ዘንድ መርጠንዎታል፡፡ የጥናቱ ዓላማ በወሊድ አገልግሎት ዙርያ የአጠቃቀም ሁኔታ ማሰስና ለወደፊቱ አገልግሎቱን ለማሻሻል የሚጠቅም የመፍትሄ ሃሳቦችን ማመላከት ነው፡፡ ተሳትፎዎ በፊቃዶ ላይ ብቻ የተመሰረተ ይሆናል፡፡ ስምዎትን መጥቀስ አያሰፈልግም፤ የሚሰበሰበውም መረጃ በጋራ እንጂ በተናጥል አገልግሎት ላይ የማይውል መሆኑን ልንገልፅለዎት እንወዳለን፡፡ በዚሁ አጋጣሚ የምትሰጡንን መረጃ ትክክለኛነት የጥናቱን ውጤት የሚወስን በመሆኑ በጥንቃቄ መመለስ ያስፈልጋል፡፡ እስቲ ያስቡበትና ውሳኔውን ይንገሩኝ፡፡ መልካም ፊቃድዎ ከሆነ ወደ ጥያቄና መልስ ውይይት መግባት እንችላለን?

ማሳሰብያ፡ ፍቃደኛ ከሆን መረጃውን መሰብሰብ ከመጀመሩ በፊት የሚከተለው ቦታ ላይ ያስፈርሙ፡፡ ፍቃደኛ ካልሆኑ ወደሚቀጥለው ይሂዱ፡፡

የቃለመጠይቁ፡

- ጠያቂ ስም_____

  ፊርማ_____
- መላሽ_____

መጠይቆች፤

ሀ. የአጠቃላይ መሠረታዊ ጥያቄዎች ዐምድ፤

ተ.ቁ	መጠይቆች	ኮድ	አስተያየት
101	ዕድሜዎን በዓመት ቢገልጹልኝ._____	0.ከ 20 ዓመት በታች 2. ከ 20- 34 ዓመት 3. ከ 35-49 ዓመት	
102	የተማሩት የትምህርት ደረጃ ስንት ነው-?_____	0. ያልተምረ 1. 1-6 ክፍል 2. 7-10ክፍል 3. 10^{+} ክፍል	
103	የትኛው ሐይማኖት ተከታይ ነዎት?_____	0. ኦርቶዶክስ 1.እስልምና 2.ካቶሊክ 3.ፕሮቴስታንት 4.ሌላ ከሆነ ----------	
104	የየትኛው ብሄር/ሰብ አባል ነዎት?	0.አማራ 1.ኦሮሞ 2. ሐረሪ 3.ጉራጌ 4.ትግሬ 5.ሶማሌ 6. ሌላ	
105	የመተዳደርያ ሥራዎ ምነድ ነው?	0. የቤት እመቤት 1. መንግስት ሰራተኛ 2. የግል ተቀጣሪ 3. ነጋዴ 4. .ግብርና 5. ይግለጹ	
106	ከዚህ ሥራዎ በወር ምን ያህል ገቢ ያገኛሉ?	0. ከ0-100ብር 1. ከ 101-500ብር 2. ከ 501-1000ብር 3. ከ 1000 ብር	
107	የጋቢቻ ሁኔታዎን ቢገለጹልን.	0.ያላገባች 1.ያገባች 3.የተፋቱ 4.የተለያዩ 5.የሞተባት 6.ሌላ	
108	መጀመሪያ ጋብቻ ሲፈፅሙ ዕድሜዎ ስንት ነበር?	0. ከ 20 ዓመት በታች 1. ከ 20-34 ዓመት 2. ከ 35-49 ዓመት	
109	የባለቤትዎን የትምህርት ደረጃ ቢገልጹልን.	0. ያለተማረ 1. 1-6 ክፍል 2. 7-10ክፍል 3. 10,ክፍል	
110	የባለቤትዎ መተዳደሪያ ሥራ ምንድነው?	0= ሥራ አጥ 1=የመንግስት ሰራተኛ 2=የግል ተቀጣሪ 3=ነጋዴ 4=ግብርና 5=ሌላ	
111	ከዚህ ስራ በወር ምን ያህል ገቢ ያገኛል?	0. ከ0 -100ብር	

		1. 2ከ101-500ብር 2. ከ501-1000ብር 3. ከ1000 በላይ	
112	አጠቃላይ ወርሃዊ የቤተሰብ ገቢዎ ምን ያህል ነው?	0 ከ0-100ብር 1 ከ101-500ብር 2. ከ501-1000ብር 3. 1000ብርበላይ	

ክፍል ለ፤ ሥነተዋለዶና ፅንስ ሁኔታ ዐምድ

201	የመጀመሪያ ልጅዎን ሲወልዱ ዕድሜዎ ስንት ነበር?	0. ከ20ዓመት በታች 1. 20-34ዓመት 2. 35-49ዓመት	
202	የአሁኑን(መጨረሻ) ሲወልዱ ዕድሜዎ በዓመት ስንት ነበር?	0. ከ20 በታች 1. 20-34 ዓመት 2. 35-49 ዓመት	
203	እስከ ዛሬ ምን ያህል አርግዘዋል;	0. 1 1. 2-4 2. 5+	
	የእርግዝና ውጤቱስ ምን ይመስላል?---------- ሀ.በሕይወት የተወለደ ብዛት ለ. ውርጃ ብዛት ሐ. ሞቶ የተወለደ ብዛት መ. ከ7 ቀናት ቡኋላ የሞተ ብዛት ሠ.ከአንድ ዓመት ቡሃላ የሞተ ረ. ሌላ ካለ ይገለጽ		
204	የመጨረሻ እርግዝናዎ መቼ ነበር ያበቃው?	ቀን/ወር/ዓ.ም	
205	የመጨረሻ እርግዝናዎን ለማርገዝ አቅደው ነበር ያረገዙት?	0 የለም 1 አዎ	
206	በዚህ እርግዝና የጽንስ ክብካብ ህክምና ተከታትለው ነበር?	0 የለም 1 አዎ	
207	ለጥያቄ 207 መልስ “አዎ” ከሆነ ሕክምናውን መከታተል የጀመሩት ስንት ወር ከሆነዎት ነው?	0.1-3 ወር 1. 3-6 ወር 2. 6-9ወር	
208	ባጠቃላይ ስንት ጊዜ ተከታተሉ?	0. 1 ጊዜ 1. 2- 3ጊዜ 2. 4ጊዜ	
209	ለጥያቄ 207 መልሱ “የለም” ከሆነ ያልተከታተሉበት ምክንያት ቢገልጹልን.		
210	የመጨረሻ ልጆዎን የት ነበር የወለዱት?		
211	የጥያቄ212 መልስ “ቤት” ከሆነ፤ ለምን ቤት ለመውለድ መረጡ?		
212	የጥያቄ212 መልስ “ጤና ድርጅት” ከሆነ፤ ለምን በጤና ድርጅት ለመውለድ መረጡ?		
213	የወለዱበት ቦታ የት ነበረ ነበር?	0. ጤና ድርጅት 1. ቤት 2. ሌላ ይግጹ	
214	የመጨረሻ ወሊድ ላይ ማን ነበር ያዋለደዎት?	0. ቤተሰብ አባል 1. የልምድ አዋላጅ 2. የሰለጠነች የልምድ ኣዋላጅ	

		3. የጤና ባላሙያ	
215	ሲወለድ የሕጸኑ ጤና እንዴት ነበር?	3. ሞቶ ነበር 4. ጥሩ አልነበረም 5. ጥሩ ነበር	
216	በወልድ ጊዜ ወይም እነደተገላጋሉ ከወሊዱ ጋር የተያያዘ እክል ገጥመዎት ነበር?	0. የለም 1. አዎ	
217	ለ ጥያቄ 218 መልስ አዎ ከሆነ፤የገጠመዎትን እክል ቢገልጹልን?		
218	ችግሩን ለመቋቋም ምን እረምጃ ወሰዱ? ያብራሩልን፤		
219	ቤት ለወለወዱ ብቻ፡ ወደ ሐኪም ቤት ተወሰዱ?	0. የለም 1. አዎ	
220	ከቤት ሀኪም ቤት የደረሱት በምን ዐይነት ትራንስፓርት ነው?	0. የግል 1. አምቡላንስ 2. ሌላ ይገለጹ	
221	ምን ዐይንት የጤና ድርጅት ተወሰዱ?	0. ክሊኒክ 1. ጤና ጣቢያ 2. .ሆስፒታል	
222	ከዚያስ ወደ ሌላ ሀኪም ቤት ተላኩ?	0. የለም 1. አዎ	
223	ከተላኩ የተላኩበት ምክንት ምንድነው?ይግለጹ		
224	አሁን እረጉዝ ነዎት?	0. የለም 1. አዎ	
225	መለሱ አዎ ካሆነ፤ እርግዝናው ምን ያህል ወር ሆነዎታል ?	2. 1 -3 ወር 3. 3-6 ወር 4. 6-9 ወር	
226	ለጽንስ ክትትል ሐኪም ቤት መሄድ ጀምረዋል?	0. የለም 1. አዎ	

ክፍል ሐ፤ ስለ እናትና የቤተሰብ ሁኔታን በተመለከተ

	የግንዛቤ ጥያቄ በተመለከተ		
301	በእርግዝና ወቅት አንዲት እናት ሊያጋጥማት የሚችሉ የጤና ችግሮች ያውቃሉ ?	5. የለም 6. አዎ	
302	መልሱ “አዎ” ከሆነ፤ ሊያጋጥሙ የሚችሉትን በዝርዝር ቢገልጹልን.		
303	በእረግዝና ወቅት ሊታዩ የሚችሉ አደገኛ ምልክቶችን ያውቃሉ?	0. የለም 1. አዎ	
304	መልሱ አዎ ከሆነ አደገኛ ምልክቶችን ቢገልጹልን.		
305	እርሰዎ በመጨረሻ እረግዝናዎ ጊዜ ያጋመዎት አደገኛ ምልክት ነበር?	0. የለም 1. አዎ	
306	መልሱ “አዎ”ከሆነ የገጠመዎትን ብትገልጹልን.		
307	በምጥ ጊዜ ሊታዩ የሚችሉ አደገኛ ምልክቶች ያውቃሉ?	0. የለም	

		1. አዎ	
308	መልሱ “አዎ” ከሆነ ዝረዝሩኑ ቢገልጹልን?		
309	ቤት መውለድ ለአደጋ ሊያጋልጥ እንደሚችል ያውቃሉ	0. የለም 1. አዎ	
310	መልሱ “አ?ዎ” ከሆነ ሊያጋጥሙ የሚችሉትን ዝረዝሩነን ብትነገሩን.		
311	በጤና ድርጅትስ መውለድ ጥቅም አለውን.	0. የለዉም 1. አለው	
312	መልሱ”አዎ” ከሆነ ያለውን ጥቅም ቢገልጹልን		
313	በምጥ ጊዜ? የሚያጋጥሙ የወሊድ ችግሮችነን መከላከል ይቻላልን?	0. የለም 1. አዎ	
314	በምጥ ላይ የሚደርሱ ችግሮች የህክምና እርዳታ አላቸውን?	0. የለዉም 1. አዎ 2. አላውቅም	

መ. የአመለካከት ጥያቄዎች ዐምድ

401	ማንኛዉንም እርጉዝ እናት በምጥ ጊዜ እክል ሊያጋጥማት ይችላል ብለው ያስባሉን?_____	0. የለም 1. አዎ	
402	እርስዎስ እንደ ሌሎቹ ችግሩ ሊያጋጥመኝ ችላል ብለው ያስባሉን?	0. የለም 1. አዎ	
403	በምጥ ላይ የሚያጋጥሙ ለጤና ወይንም ለሕይወት አስጊ ነው ብለው ያስባሉን?	0. የለም 1. አዎ	
404	በወሊድ ጊዜ የሚያጋጥሙ ችግሮች ለሕጻኑም ጤና ሆን ሕይወት አስጊ እንደሆነ አሰበው ያውቃሉ?	0. የለም 1. አዎ	

ረ. ባለሙያዎች፤ ጤና ድርጅትና አገልግሎት በተመለከተ

501	ከአሁን በፊት ሐኪም ቤት ወልደው ያውቃሉን?	0. የለም 1. አዎ	
502	መለሱ “አዎን” ከሆነ የትኛውን ልጅዎን?		
503	መልሱ”የለም” ከሆነ ሐኪም ቤት መውለድ ያልመረጡበት ምክንት ቢገልጹልን.		
የመጨረሻ ልጃቸውን ሐኪም ቤት ለወለዱ ብቻ			
504	የወሊድ አገልግሎትን ያገኙት በክፍያ ነበርን?	0. የለም 1. አዎ	
505	በክፍያ ከሆን ምን ያህል ከፈሉ?		
506	ክፍያውን አራስዎ ነው የሸፈኑት?	0. የለም 1. አዎ	
507	መልሱ የለም ከሆነ፤ ሌላ አካል ከሸፈነልዎ ድርጅቱን ወይንም ግልሰቡን ቢገልጹልን.		
508	ክፍያው መጥን መልካም ነውን	0. የለም 1. አዎ	
ለሁሉም እናቶች የሚጠየቅ			
509	የት መውለድ እነዳለብሽ ማን ነው የሚወስነው?	0. አራሴ 1. ከባላቤቴ ጋራ 2. ባለቤቴ ብቻ 3. ልላ ከሆነ ይገለጽ	
510	ማን እነደሚያዋልድሽ ማን ነው የሚወስነው?	0. አራሴ 1. ከባላቤቴ ጋራ 2. ባለቤቴ ብቻ	

		3. ልላ ከሆነ ይገለጽ	
511	የጤና ባለሙያዎች የማዋለድ ልምዳቸውን እንዴት ያያሉ?	0. ጥሩ አይደለም 1. ጥሩ ነው 2. አላወቅም	
512	ሲያዋልዱ የሚሰጡትን እንክብካቤ እንዴት ያዩታል?	0. ጥሩ አይደለም 1. ጥሩ ነው 2. አላወቅም	
513	የባላመያዎቹን ጸባይስ እነዴት ያዩታል?	0. ጥሩ አይደለም 1. ጥሩ ነው 2. አላወቅም	

Declarations

I the undersigned, declare that this thesis is my original work and has not been presented for a degree in this or other university, and all sources of materials used for this thesis have been fully acknowledged.

Name of student: Abdi Beker

Signature_____

Date of submission_____

Place_____

This thesis has been submitted with my approval as University Advisors,

Dr. Solomon Shiferaw

Signature_____

Date_____