ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCE

SCHOOL OF PUBLIC HEALTH

ASSESSMENT OF MAGNITUDE AND FACTORS AFFECTING PLACE OF DELIVERY AMONG WOMEN OF CHILD BEARING AGE IN NUNU KUMBA WOREDA, EAST WOLLEGA ZONE, OROMIA REGION, ETHIOPIA.

INVESTIGATOR:-DESALEGN KUMERA (Bsc)

ADVISOR- AYELE BELACHEW (MD, MPH)

A THESIS SUBMITTED TO THE SCHOOL OF PUBLIC HEALTH, COLLEGE OF HEALTH SCIENCE ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTERS OF SCIENCE IN PUBLIC HEALTH.

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Abbreviations

ANC	Antenatal Care
AOR	Adjusted Odds Ratio
BEmONC	Basic Emergency Obstetric and Neonatal Care
CEmONC	Comprehensive Emergency Obstetric and Neonatal Care
COR	Crude Odds Ratio
CSBA	Community Skilled Birth Attendants
EDHS	Ethiopia Demographic Health Survey
FWV	Family Welfare Visitor
HEP	Health Extension Program
HEWs	Health Extension Workers
MCH	Maternal and Child Health
MDG	Millennium Development Goal
MMR	Maternal Mortality Rate
PNC	Postnatal Care
PPH	Post Partum Hemorrhage
SBA	Skilled Birth Attendants
SPSS	Statistical Package for Social Studies
SSA	Sub-Saharan Africa
STI	Sexually Transmitted Disease
TBA	Traditional Birth Attendants
UN	United Nation
UNICEF	United Nations Children's Fund
VCHWs	Voluntary Community Health Workers
WHO	World Health Organization

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Abstract

Back ground- A lack of skilled attendants at birth accounts for two million preventable maternal deaths, stillbirths and newborn deaths each year. Several factors have been identified as barriers to access to skilled care by women; including unavailability of the services, inadequate number of skilled personnel, geographical inaccessibility and poor quality of care, economic factors, poor service seeking behavior, traditional and cultural preference for home delivery.

Objective-To assess the magnitude and factors affecting place of delivery among women of child bearing age in East Wollega Zone, Nunu Kumba woreda, Oromia region, Ethiopia.

Methods- Community based cross sectional quantitative household survey among 664 samples women of child bearing age was conducted using pre tested structured questionnaire in Nunu Kumba Woreda from March to April 2013. Multi stage sampling technique was employed to select the samples. Epi Info Version 3.5.3 and SPSS version 20 were used for data entry and analysis respectively. Associations between variables were assessed by Odds Ratio, 95% Confidence Intervals and p-values. Multiple logistic-regression was used to adjust for possible confounding variables.

Results- The study revealed that institutional delivery was 38.7% in the woreda. Maternal age, maternal education, husband education, age at first marriage, ANC attendance, number of ANC visits, planning of pregnancy, husband's choice of place of delivery and mode of transport to health facility were associated independently with maternal place of delivery. Those mothers who attended primary education and whose husbands' educational status was primary were less likely to give birth at home compared to illiterate (AOR=0.50; 95% CI=0.28, 0.92) and (AOR= 0.31; 95% CI=0.16, 0.59) respectively. Those mothers who did not attended ANC for their last pregnancy were 7.8 times more likely to give birth at home (AOR=7.81; 95% CI=2.23, 27.3) and whose age at first marriage were 18 years or more were 2 times more likely to give birth at home (AOR=2.07; 95% CI=1.03, 4.17).

Conclusion- The study revealed that institutional delivery fell far below the national goal in the woreda. Demographic, obstetric, mode of transportation and preference are factors related to low utilization of institutional delivery in the woreda. Therefore, providing information for higher age group mothers and their partner's on increased risks of home delivery, providing appropriate information during ANC check-ups, encouraging ANC attendance, allowing the relatives to be with laboring mother when they come to health facility are recommended.

1. INTRODUCTION

1.1 Background

Maternal mortality-the death of women during pregnancy, childbirth, or in the 42 days after termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes- remains a major challenge to health systems worldwide (1, 2).

Globally, there were an estimated 287 000 maternal deaths in 2010, providing a Maternal Mortality Rate of 210 per 100,000 live births according to WHO, UNICEF, UNFPA and The World Bank estimates(2). Developing countries account for 99% (284,000) of the global maternal deaths, the majority of which are in sub-Saharan Africa (SSA) (162,000) and Southern Asia (83,000). These two regions accounted for 85% of global burden; with sub-Saharan Africa alone accounting for 56%(2). SSA had the highest MMR at 500 maternal deaths per 100,000 live births, while Eastern Asia had the lowest among MDG developing regions at 37 maternal deaths per 100,000 live births (2).

Worldwide, 80% of maternal deaths are due to few direct obstetric complications—sepsis, hemorrhage, eclampsia, obstructed labour and unsafe abortion; most could be prevented or managed if the woman had access to a skilled attendant with the necessary back-up and support. The remaining deaths, those caused by the underlying conditions exacerbated by pregnancy, *e.g.* severe anemia, tuberculosis (TB), malaria and HIV/ AIDS, also require the assistance of a skilled health care provider during pregnancy, birth and the immediate postnatal period for appropriate management and treatment(3). In Africa hemorrhage causes 34% of maternal mortality and the proportion of deaths due to Post Partum Hemorrhage (PPH) that occurred in facilities is most likely due to the fact that over 90% of births take place at home, and women with PPH may not be arriving at a health facility on time (1, 4).

Although all women and babies need pregnancy care, care in childbirth is most important for the survival of pregnant women. However, around the world, one third of births take place at home without the assistance of a skilled attendant. Although most women do not experience major problems during childbirth, complications that do occur can be sudden and unpredictable, requiring immediate attention. Maternal and prenatal outcomes in such instances are greatly improved when such complications occur in the presence of a trained attendant and in a facility well equipped to handle such emergencies. WHO strongly advocates for “skilled care at every birth” to reduce the global burden of maternal deaths (5, 6).

UNFPA affirms that it is the basic right of every woman and baby to have the best available care to enable them to survive pregnancy and childbirth in good health(7). Saving mothers’ lives is widely recognized as an imperative for social and economic development, as well as a human rights imperative. Skilled attendance at delivery is an important indicator in monitoring progress towards Millennium Development Goal 5 to reduce the maternal mortality (8). In addition to professional attention, it is important that mothers deliver their babies in an appropriate setting, where life saving equipment and hygienic conditions can also help reduce the risk of complications that may cause death or illness to mother and child (8).

It is estimated that no more than 40% of births in the developing world are attended by a skilled healthcare provider, a midwife, or other formally trained healthcare provider with midwifery skills and it can be as low as 10 per cent in low-income countries. In contrast, in high-income countries and in many countries with transitional economies, a skilled birth attendant will assist 90% or more of all births(7). Appropriate delivery care is crucial for both maternal and prenatal health and increasing skilled attendance at birth is a central goal of the safe motherhood and child survival movements (8). A lack of skilled attendants at birth accounts for two million preventable maternal deaths, still births and newborn deaths each year. The global shortage of midwives is especially severe: an estimated 700,000 new midwives and other trained providers are needed in order to provide skilled childbirth care to all women who need it. In Africa alone, an additional 1.5 million health workers are needed, nearly doubling the current workforce of 1.6 million, according to the Global Health Workforce Alliance (9).

One of the factors associated with this maternal mortality is the occurrence of home deliveries in developing countries as they are largely unplanned, accidental and unhygienic(10). In Ethiopia, maternal mortality level is among the highest in the world accounting 676 per 100,000 live births according to 2011 Ethiopian Demographic Health Survey (EDHS), which is likely linked to extremely low utilization of skilled birth attendants, low facility delivery and lower use of emergency obstetric care (11). Accordingly, 34% of pregnant mothers received antenatal care from a skilled provider, and only10% of deliveries are conducted in public facilities and nine women in every ten deliver at home. The majority (58%) of these are assisted by relatives, 28% by TBAs and 5% without any assistant at all (11). In Oromia region only 31.3% received Antenatal care of which only 8% received skilled care from skilled care attendants according to 2011 EDHS (11). But Health Management Information System (HMIS) report shows variation in skilled care being 16.6% nationally and 17.7% in Oromia Region (12). Therefore, assessing the factors affecting place of delivery in the study area is very important to improve skilled care services thereby reducing maternal and infant deaths.

1.2 Statement of the problem

In spite of the national effort to improve access to and strengthening facility-based maternal and newborn services, there is still low utilization of skilled attendance for childbirth making Ethiopia among the highest in SSA countries in maternal mortality. Several factors have been identified as barriers to access to skilled care by women; including unavailability of the services, inadequate number of skilled personnel, geographical inaccessibility and poor quality of care, economic factors, poor service seeking behavior, traditional and cultural preference for home delivery. The percentage of births delivered in health facility ranges from less than 10 percent in SNNP, Affar, Oromia, Somalia, and Benishangul-Gumuz regions to 82 percent in Addis Ababa(11). Accordingly only 8% of deliveries are conducted in health facilities in Oromia Region in 2011 G.C (11).

Nunu Kumba woreda is located in East Wollega Administrative Zone, found in Oromia Region. Therefore, this study aimed to assess factors affecting place of delivery leading to low utilization of skilled care service among mothers who gave birth in the last 24 months in Nunu Kumba District, Oromia Region, Ethiopia(4). In addition, since there is no previous study that has been done in the study woreda it becomes important to identify the factors that lead to either home or health institutional delivery and this helps as a reference for the relevant stakeholders in the planning and implementation of intervention activities to improve the delivery service utilization of pregnant women in Nunu Kumba woreda.

1.3 Rationale of the Study

Information on why mothers choose to deliver at home in preference for institutional (health center and private clinic) delivery is very vital for health planners and managers in order to rationally design the appropriate maternity services and to act up on the determinant factors for the preference of place of delivery. This is of high importance where Ethiopia is pushing hard to meet the MDG goals. This study focuses on both urban and rural areas to add new knowledge to the existing ones and provides updated information on factors that affect place of delivery. Therefore, information resulting from this research will be used as first hand information to plan appropriate interventions towards improving the usage of appropriate place for delivery services in the woreda. It will help to indicate the direction of intervention to the health workers and also to take corrective measure to the existing service.

2. LITERATURE REVIEW

2.1 Magnitude of Maternal Mortality

The UN report shows that the yearly number of maternal deaths dropped from more than 543, 000 in 1990 to 287,000 in 2010—a decrease of 47% in 20 years, which is remarkable. Worldwide, an average annual decline of 3.1% was observed, which indicates "making progress". However, the breakdown by MDG region gives a different picture. Eastern Asia is on track with 5.7% average annual decline, while Northern Africa nearly made the target at 5.3%. The Caucasus and Central Asia region had the lowest average annual decline but the MMR was already low at 71 maternal deaths per 100,000 live births. However, progress has been too slow for many countries to meet Millennium Development Goal 5, and has been unequal between countries(2).

Of all regions, sub-Saharan Africa had the highest maternal mortality ratio in 2010, at 500 maternal deaths per 100,000 live births. The adult lifetime risk of maternal mortality in women from sub-Saharan Africa was the highest at 1 in 39, in contrast to 1 in 3800 among women in developed countries (2). One explanation for the poor health outcomes among women and children in resource-poor settings is inadequate access to modern health services and poor utilization of these services by a large number of women. Efforts have been made to identify appropriate process indicators to assess reproductive health. The emphasis has more recently shifted from measuring indicators of health to indicators of access and use of health care systems (2, 13, 14).

With a maternal mortality rate of 676 per 100,000 live births (EDHS 2011) and 19,000 maternal deaths annually, Ethiopia is a major contributor to the worldwide mother's death. Although better achievement was reported with regard to reducing infant and child mortality in the country, slow progress has been achieved in terms of the Millennium Development Goal (MDG) 5, the cornerstone of maternal health (15).

The major causes of maternal death in Ethiopia are obstructed/prolonged labour (13%), ruptured uterus (12%), severe pre-eclampsia/ eclampsia (11%) and malaria (9%), and complications from abortion (6%)(16). Most of these deaths are preventable when there is access to adequate reproductive health services, equipment, supplies and skilled healthcare workers. The major supply side constraints are shortages of skilled midwives, weak referral system at health centre levels, inadequate availability of Basic Emergency Obstetric and Neonatal Care (BEmONC) and

Comprehensive Emergency Obstetric and Neonatal Care (CEmONC) equipment, and under financing. On the demand side, cultural and societal norms, distances to functioning health centers and financial barriers were the major constraints(16).

2.2 Determinant Factors for preference of place of Delivery

There is expert consensus that delivery at a health facility substantially reduces the risk of maternal death (17). Most obstetric complications occur around the time of delivery and cannot be predicted. Therefore, skilled attendance at delivery is advocated as the "single most important factor in preventing maternal deaths" and the "proportion of births attended by skilled health personnel" is one of the indicators for Millennium Development Goal 5(18). Several factors have been identified as barriers to access to skilled care by women especially in developing countries. These include unavailability of the services, inadequate number of skilled personnel, geographical inaccessibility and poor quality of care, financial constraints, no perceived need for such services, preference for home delivery because it is much less expensive(19, 20).

Findings from central Tanzania also indicate proportion of women that used health facilities for delivery and hence attended by skilled health personnel's was not satisfactory. Only 54% of total respondents reported to use health facility for delivery during their most recent birth. In these studies it was reported that some women prefers home delivery, however they go to clinic during pregnancy (usually few visits) to secure registration (clinic card) so as they can be acceptable at the facility in case birth complications occur during home delivery. This is based on the fact that health facility is treated as last resort during delivery (i.e., women are only referred to the facility in case of birth complications). Unfortunately, assistance of health professional in the health facility is usually sought very late, consequently resulting into maternal deaths (21).

Several socio-economic, cultural and religious factors play a significant role in the use of skilled birth attendance for delivery. Availability of transportation and distance to the health facility; cost and convenience; staff shortages and attitudes; gender inequality; status of women in society; women's involvement in decision making; and women's autonomy, mother's educational level, husband's occupation, age at first pregnancy, the greater confidence and experience of the older and higher parity women, together with greater responsibilities within the household and for child care and place of residence are suggested as explanatory factors for their tendency to use services less frequently (6, 19, 20). Some of the factors are discussed below.

2.2.1 Socio-economic and demographic Factors

2.2.1.1 Women's Autonomy

The various dimensions of autonomy, such as position in the household, financial independence, mobility and decision-making power regarding one's own healthcare, may all impact on health facility use(18). In many countries, women cannot decide on their own to seek care, but have to seek permission from a husband or mother-in-law. Furthermore, women may lack control over material resources needed to pay for expenses, their mobility may be restricted or they may lack access to vehicles or even mules/horses (18). Power dynamics within households determine the use of health facilities as well as of skilled providers. South Asian women tend to get low priority in household resource allocations, and decisions about contact with outsiders are often made by husbands or mothers-in-law. Such dependence and deprivation can have serious repercussions. Delays were often due to husbands' absence from home and the women's lack of autonomy to approach health providers or facilities on their own (22).

2.2.1.2 Maternal Education

Maternal education has also been shown repeatedly to be positively associated with the utilization of maternity care services(23). Although, in general, women in higher socioeconomic groups tend to exhibit patterns of more frequent use of maternal health services than women in the lower socioeconomic groups, factors such as education appear to be important mediators(23). A study conducted in rural Andhra Pradesh, India, showed that educated women, particularly women with secondary education level were more likely to utilize skilled birth attendants and health institutions for delivery(24). In Bangladesh and Nepal, three to four percent of illiterate women deliver in an institution compared to half to two-thirds of those with secondary or higher education (22). A cross sectional descriptive survey conducted in a semi-urban settlement in Zaria, Northern Nigeria also reported that mother's literacy level was found to be the most important determinant of choice of place of delivery as those with non formal education tend to deliver at home (20). Education continues to exert a strong and independent impact on utilization of antenatal care services in urban Ethiopia. Compared with women with no education, those with primary education were nearly two times more likely to use ANC services (23).

2.2.1.3 Income

One of the main factors affecting use of health facilities is poverty. When there is no money to pay for care or drugs, people do not go. This situation also affects childbirth. Poverty is perceived by women as a factor of home birth. The lack of money is a barrier for use of health facility for ante natal care (ANC) and delivery. It makes pregnant women spend a lot of time at home probably in search for money or to find someone who can lend to them so that they go to health facility for childbirth. The use of traditional birth attendants is due to the availability of these women who generally are old women with some birth experiences; they come from the community and know the culture and they are less expensive (25). Women living in urban areas and with the top quintile of household wealth had a greater share of delivery in the public and private facilities, whereas their rural and poorest wealth quintile counterparts relied more on non-institutional delivery (26).

A study undertaken by the World Bank in five countries of South Asia indicates that Rich-poor and education gaps are highest for institutional delivery among all reproductive health services. The situation is similar among the poorest women. In Bangladesh, rural India, Nepal and Pakistan, even among women from the richest quintile of households, half or less delivered in institutions (22).

In Sub-Saharan Africa, South Asia, and Southeast Asia, 75%–90% of women in the lowest two wealth quintiles reported giving birth at home. In these three regions (SSA, South Asia, and South East Asia), it was much more common for the richest women to use public facilities than the poorest women. In SSA, the poorest women were over three times more likely to report giving birth at home than the richest women (77.7% versus 22.4% respectively). Fewer than 3% of women in SSA as a whole reported giving birth in a religious hospital (27).
A study conducted in Ghana on the determinants of institutional delivery among a cross section of Ghanaian women found out that income and access to health information are significant in explaining the utilization of maternal health services –institutional and supervised delivery (28).

2.2.1.4 Geographical accessibility

Distance to health services exerts a dual influence on use, as a disincentive to seeking care in the first place and as an actual obstacle to reaching care after a decision has been made to seek it. Many pregnant women do not even attempt to reach a facility for delivery since walking many kilometers is difficult in labour and impossible if labour starts at night and transport means are often unavailable. Those trying to reach a far-off facility often fail, and women with serious complications may die on route. The obstacle effect of distance is stronger when combined with lack of transport and poor roads (18, 29).

A study from Ibadan North South-Western, Nigeria showed that both distance and delivery place share indirect relationship. That is, as distance to nearest delivery centre increases, the utilization level of delivery place decreases and vice versa(30). Another study conducted in Nchelenge district, Zambia revealed that the distance from the mother's homes to the health facility was challenging in utilization of institutional delivery. Women who lived within a radius of 5 kilometers to the nearest health facility providing maternal health and delivery services were less likely to deliver at home compared to those who lived more than 5 km away from health facility(10).

2.2.1.5 Maternal Age

According to the report of Bangladesh Demographic Health Survey (BDHS) in 2011, the likelihood of delivering in a health facility is considerably lower for women 35 years or older compared to those who are younger. Facility delivery decreases sharply as birth order increases. On the other hand, the number of women's antenatal care visits, education level and wealth status have a positive relationship with their likelihood of delivering in a health facility (31). A community based cross-sectional study conducted in South East Ethiopia, Oromia region, Munesa Woreda also indicates, mothers less than 20 years of age were about 6 times more likely to deliver at health institutions than mothers more than 35 and above(32).

2.2.2 Preference of place of delivery

Women play a major role in the rearing of children and the management of family affairs, hence, their loss from delivery complications is a significant social and personal tragedy. It is often maintained that women's choices and preferences for location of childbirth are enshrined in society's understanding of birth as a social process(28). Undoubtedly, the choice of and preference for childbirth location are influenced by the socio-economic factors of the contextual environment in which they arise. Cultural and religious epistemologies shape the demand for health seeking such as the demand for delivery institution. Early and regular check-ups by health professionals are essential in assessing the physical status of women during pregnancy and ensuring appropriate interventions during delivery(28). In structured interviews conducted in villages proximate to a hospital in Nimba Country, Liberia, only one in six women reported delivering their last child in a hospital, that is, 83.2% of women reported their last delivery to have been at home. Of women delivering at a regional hospital, 35.5% were by caesarean section and 8% were stillborn. These metrics indicate severe underutilization of timely, supervised, institutional birthing services among women in north-central Liberia. Study Participants reported cultural traditions barriers to seeking care, including the practice of delivery under the care of a TM (Traditional midwife is the term used in Liberia, analogous to the traditional birth attendant in other nations) (33).

A qualitative study from Northern Ethiopia indicated that Women made decisions in a pragmatic way, trying to make the best of the situation and the resources that were accessible to them. Participant women believed that prenatal check-ups were beneficial, but might deliver at home owing to transportation difficulties, and might resort to a health facility if complications such as bleeding, retained placenta or prolonged labor were encountered. In the same way, God's support during delivery was perceived as available anywhere, independently of the place of delivery; as one participant pointed out, '*there is no conflict between God and hikimina [health facility]*(15).

2.2.3 Cultural factors

Cultural factors primarily influence decision-making on whether to seek care, rather than affecting whether women reach a facility. One could conceptually distinguish the mother's own motivation to use services from whether she can act on her wishes. Besides, decision-making of both mother and her family and therefore included women's autonomy and husband's education also should be considered (18).

2.2.3.1 Traditional attitude

The study conducted in Kavrepalanchok district of Nepal shows that the traditional view on delivery practice was one of the major contributing factors for home delivery. In Nepal especially in rural and remote area women still believe in faith and fatalism, accepting whatever the consequences will come. The study also mentioned that women have little or no power in their marital home and are almost entirely at the mercy of their mother in law's perception of their pregnancy and delivery care needs (34).

According to cross-sectional analytical study carried out in Verka block of Amritsar district, Punjab, India, about two-thirds (66.1%) of the respondents reported of home delivery. Among these, the majority (86.2%) practiced home delivery due to traditional attitude and deliveries are considered routine affairs and don't require much medical attention(35).

2.2.3.2 Belief about child birth

A study conducted in Kenya indicated that, lack of sensitization among women on importance of skilled attendance at delivery, the value women place on delivery by a traditional birth attendant (TBA) and the perception on health facilities are the reasons identified for the low attendance of skilled birth attendance (31). They state that "health facility is a harsh setting for childbirth because they leave you alone during your labour pain at the health centre but, the TBA stays with you and helps you to deal with the pain." Because they think that previous generation delivered at home, so will this generation of women too. Similarly, since it is only a minority of deliveries that are complicated by life-threatening events, witnessing of normal deliveries in a woman's own life or in that of her friends or relatives reinforces the idea that delivery at home is safe. The social role played by TBAs in communities is recognized and respected, and therefore, their attendance is highly valued. Additionally, a minority of women believe that childbirth-related complications are caused by witchcraft, and TBAs are perceived as better equipped to intervene in these cases(36).

A qualitative study conducted in Northern Ethiopia clearly pointed out that the study participant did not consider pregnancy and delivery as illnesses. They perceived delivery as a natural process, an ordinary event that has been managed at home for generations. Previous non-complicated home deliveries further helped to reinforce this perception of delivery as a non-illness process(15).

2.2.4 Obstetric Factors

In general, about 85 percent of births are normal and 15 percent have associated complications. While 'normal' births may not need obstetric intervention (and hence could occur at home), complicated births require assistance at adequately equipped facilities to increase the likelihood of a positive outcome(22). Importantly, it is impossible to predict into which group a woman would fall *as all women are at risk of complications*. Untreated or improperly treated conditions during pregnancy or delivery can lead to maternal or neonatal deaths. Hence, the current recommendation is to ensure skilled attendance at delivery whether at home or at a health facility and a well-functioning referral system(22). The chances of an institutional delivery were lower in the youngest age-group than among older women. Many women fear going to hospitals to deliver, believing that they would not experience a normal delivery there. As a poor woman in one country put it: "*For money, they (doctors) are ready with knives for surgery."*(22).

2.2.4.1 Parity

According to study conducted in Pakistan in 2011, institutional delivery varied dramatically by parity. About 53% of women delivered their first child at a facility, compared to 28% of women who delivered their sixth child at a health facility (17).

A cross sectional survey from rural Tanzania revealed that use of health facilities for delivery was low (39%), with odds of institutionalized delivery three times higher among nulliparous women (0 children prior to current delivery) compared with women with one to four children; and 30% lower among women with five or more children compared with those with one to four children(37).

A Community based cross-sectional study conducted in South East Ethiopia, Oromia region, Munesa woreda indicated that parity was also important factor which was associated with the place of delivery. Mothers who were delivering their first babies were 2.4 times more likely to utilize health institutions as compared to those who had five and more deliveries (32).

2.2.4.2 ANC utilization

Antenatal care services can provide opportunities for health workers to promote a specific place of delivery or give women information on the status of their pregnancy, which in turn informs their decisions on where to deliver. Risk assessment during ANC may explicitly recommend a place of delivery, for instance to deliver in a hospital for a twin pregnancy. ANC attendance can be a marker of familiarity in interacting with the health system and with the health facility. Women who use ANC may therefore be more likely to use facilities for delivery. Alternatively, use of ANC may signify availability of a nearby service, which may also provide delivery care (18). Antenatal care plays a strong role in increasing institutional delivery. In Bangladesh and India, the odds of women who had more than three antenatal visits delivering in institutions were 15 and 9, respectively, over those who had no ANC. In Nepal, even one ANC visit led to odds of 4.6 (22). ANC visit during the last pregnancy was also found to be a strong predictor of institutional delivery service utilization in Ethiopia. Mothers who visited health facilities for ANC during pregnancy were 4.2 times more likely to deliver at health institutions than those who did not visit ANC during the last pregnancy(32).

2.2.5 Health Service Factors

2.2.5.1 Health Service provider attitude

A strategic assessment of the maternal health services in the Dominican Republic shows that patients do not feel that the care provided by the hospital is pleasing. Patients also feel that the staff is indifferent and uncaring. The observations by the team doing the study vividly described the de-humanizing care including lack of privacy, dignity and communication with the patients (38).

A study conducted in East Hararge Zone, Haramaya Woreda revealed that health service provider's attitude towards laboring mother tend to cease preference of maternal health service. Women who said the approach of service providers was poor were less likely to choice health facility compared to those women who replied the approach were very good(19).

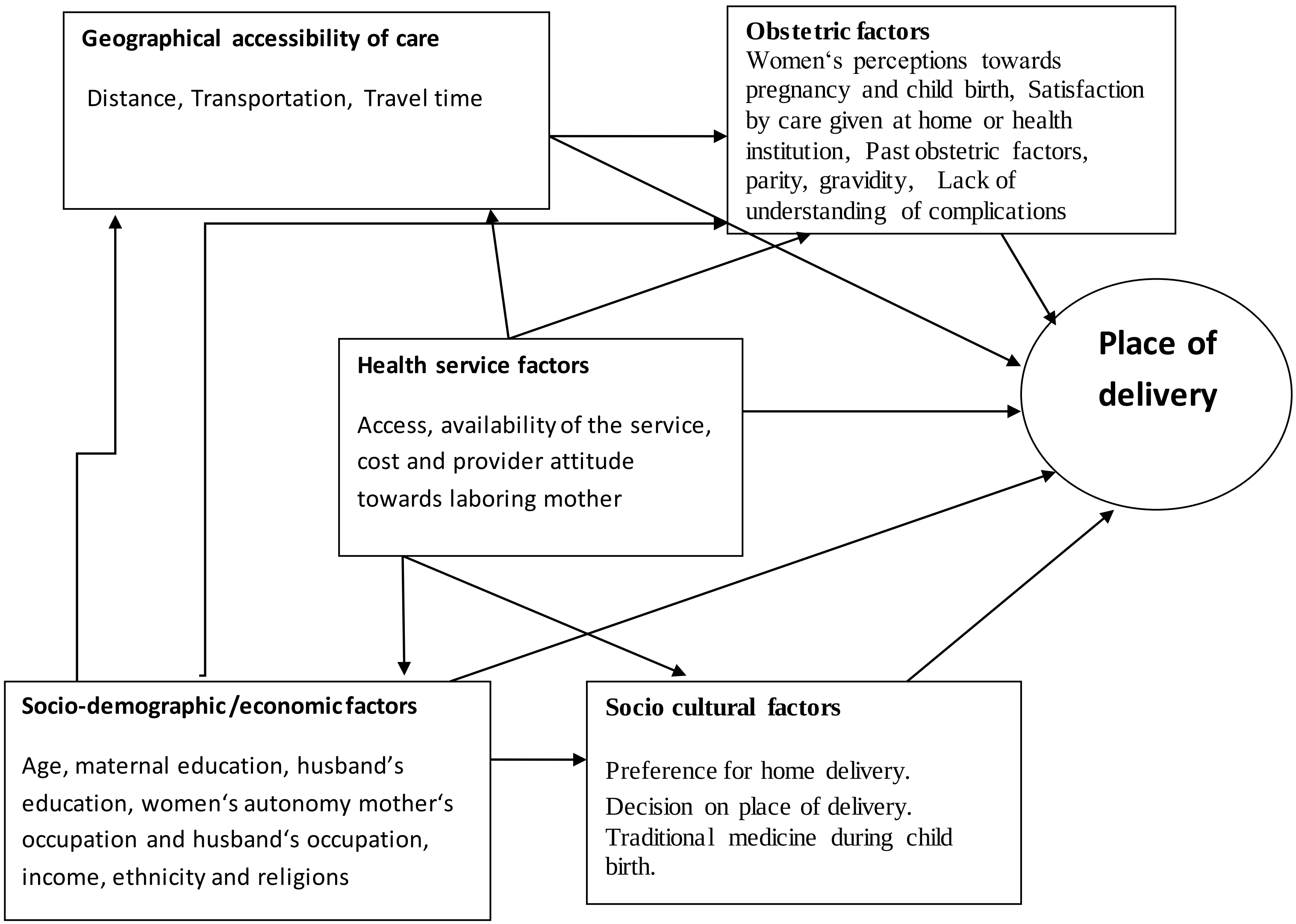
2.2.5.2 Payment for delivery service

The cost of delivery in government facilities was driven by two factors: transport costs and service cost. Even though service cost is exempted the clients are exposed to transportation cost while reaching facility contributing to low facility utilization in rural settings and poor community. A study conducted in rural Tanzania found that the payments for delivery were frequently a source of financial hardship in population. Approximately 41% of women who delivered in a facility reported having to cut down on other spending to pay for delivery costs and 37% of women reported having to borrow money or sell household assets. Cutting down on spending and borrowing or selling were much more common among the poorest quintile of women than among the least poor quintile (39).

Study conducted in Ethiopia from the analysis of EDHS 2000 and 2005 in 2013 found that low socioeconomic status of the mother is an important predictor of home delivery. The higher the wealth index the greater is the likelihood of giving birth in health facilities. This shows that poor mothers are unlikely to afford the cost of transport and other medical costs.

Even though the service in a health post and health center is given free of charge, it incurs costs when complicated delivery is referred to hospitals(40).

Fig-1 Conceptual framework for assessment of magnitude and factors affecting place of delivery among women of child bearing age, Nunu Kumba, East Wollega, Oromia, Ethiopia 2013. **Source**- Developed from the three delays Model.



3. OBJECTIVES

3.1 General Objective-to assess magnitude and factors affecting place of delivery among women of child bearing age in Nunu Kumba Woreda, East Wollega Zone, Oromia Region, Ethiopia.

3.2 Specific Objectives

→ To determine magnitude of institutional delivery

→ To assess factors that affect place of delivery.

4. METHODOLOGY

4.1 Study design – a quantitative community based cross-sectional house hold survey among women who gave birth in the last 24 months.

4.2 Study Area-The study was conducted in Nunu Kumba woreda, East Wollega Zone, Oromia Region, 400 Km from Addis Ababa. The total population of Nunu Kumba woreda is 76,432 (projected from 2007 census) of which 38,980 (51%) are female. 18.4% (14,063) of the total population were women of child bearing age (15-49) of which 3.37% (2576) are expected to be pregnant. There are four health centers staffed with midwives, 21 health posts, and several private clinics in the woreda. The woreda has ambulance to refer patients to Nekemt Hospital. There are 2 urban Kebeles and 20 rural Kebeles, two high schools and one preparatory school in the woreda.

4.3 Study Period- from March - April, 2013.

4.4 Source Population- All women of child bearing age (15-49 years) in Nunu Kumba Woreda.

4.5 Study Population- Women of child bearing age who gave birth in the last 24 months irrespective of pregnancy outcomes, gestation or place of delivery in selected sample Kebele's.

4.6 Inclusion Criteria

- Women of child bearing age who are usual residents (de jure) of study area.
- Women of child bearing age (15-49 years) who gave birth in the last 24 months and are mentally and physically capable of being interviewed.

4.7 Exclusion Criteria

- Women of child bearing age who are not physically and mentally capable of being interviewed.

4.8 Sample size determination

The sample size is determined using single population proportion formula:

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

Proportion of deliveries attended by skilled birth personnel of Oromia region is 8% (EDHS 2011).

Where n=sample size

Z=Reliability Coefficient with 95%confidence interval

P=Population variance available from previous data q=1-p

d= Standard error allowed=3%

If the value of p is 0.08 and the desired error chosen to be 0.03 with the reliability coefficient of 1.96% certainly (z=1.96)

$$n = \frac{(1.96)^2 * 0.08(1-0.08)}{(0.03)^2} = \frac{3.84*(0.074)}{0.0009} = \frac{0.284}{0.0009} = 316$$

n=316 multiplying by 2(design effect) =632+5% none respondent rate 32= <u>664</u>

4.9 Sampling Technique-Multistage sampling technique was employed. Simple Random Sampling technique was used to select the study kebele. Consequently, one urban kebele from two urban kebeles and eight rural kebeles from 20 rural kebeles were selected based on shortage of the resource (budget & time). The secondary sampling units, the households in the selected Kebele's were selected using systematic sampling procedure by starting at random around kebele office every 11th house was interviewed in both rural and urban and lottery method used to select the first house in urban. The sample size was distributed to Kebele's by probability proportion to size (PPS) formula. Interviews were conducted by face to face visits at women's house of those who were eligible for the study and in case there were two mothers in selected house lottery method was used to select one. When no eligible woman was identified in the selected house hold, the next household located in the right direction was visited.

Schematic presentation of sampling procedure (Figure 2)

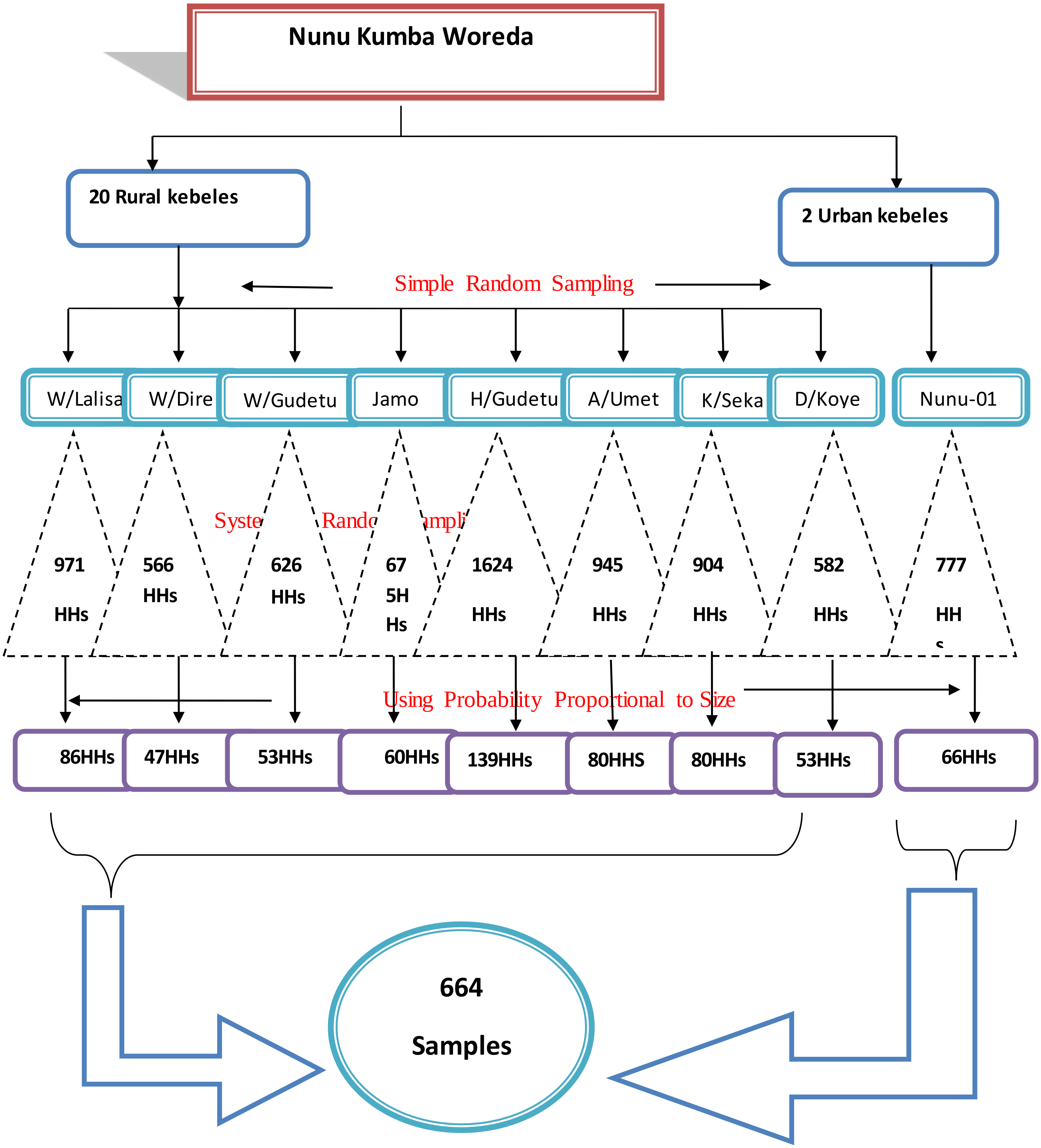


Fig 2-Schematic presentation of sampling procedure, East Wollega Zone, Oromia, Ethiopia June 2013.

4.10 Data collection instrument and Procedure

The structured questionnaire was first prepared in English and then translated to Afan Oromo. College graduate Five Nurses who know and speak Afan Oromo were selected and hired for data collection. They were trained on objective of the study, method of data collection and discussed thoroughly on the tools prepared for data collection by the principal investigator for two days. During the training days explanation was given on the purpose of the study and discussed on the tool designed for data collection, how to implement, potential problems that can arise and how to solve them. The questionnaire was pre-tested on 66 eligible women in neighboring kebeles and necessary adjustment was made to the tool. The interview technique was employed for the selected respondents in the chosen households. Explanation was given on the purpose of the study and the importance of their involvement then respondents who volunteered were interviewed face- to- face using structured and pretested questionnaires.

4.11 Variables

4.11.1 Independentvariables

- Socio-demographic like age, maternal education, husband education, women‘s autonomy, ethnicity and religions, mother’s occupation and husband’s occupation
- Economic factor like income
- Cultural factors like traditional beliefs on place of delivery.
- Information on place of delivery.
- Health service factors like, Geographical accessibility of care like distance to facility, availability of the service, cost and provider attitude towards laboring mother.
- Personal factors like women‘s perception towards pregnancy and child birth, satisfaction by the care given at health institution, women‘s previous experience
- Past obstetrical profile of the mother, gravidity, parity

4.11.2 Dependentvariable

- Place of delivery (Home, Health Institution)

4.12 Operational definitions

Skilled Birth Attendant- people with midwifery skills (for example, doctors, midwives and nurses) who have been trained to proficiency in the skills necessary to manage normal deliveries and diagnose, manage, or refer obstetric complications.

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

Gravidity- total number of pregnancies a woman had regardless of pregnancy out come.

Income-The total amount of money received by members of the house hold per month (for rural study participant calculated in kind the crop, cattle changed in to monetary forms).

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

Attitude of health workers:-affective behavior (feelings) of health staff towards clients and relatives expressed as good, satisfactory or poor based on respondents judgment when they come to health facility.

Distance: - is measured in walking hours from home to the nearest health facility (Distance more than 1 hour from home to health facility is considered to be far.)

4.13 Data analysis

Collected quantitative data was edited, coded and entered to Epi Info computer software version 3.5.3. Then it was exported to SPSS version 20 for analysis. The data were cleaned by visualizing, calculating frequencies and sorting. Corrections were made according to the original data. Finally, univariate analyses were done using frequency and percentages. Bivariate analyses between dependent and independent or independent and independent variables were performed using chi square (x^2) and binary logistic regression. Multivariate analysis was also done to control (adjust) for possible confounding variable. Those variables showed significant association on bivariate analyses were adjusted to each other to identify independent determinants. Associations between variables were assessed by using Odds Ratio, 95% Confidence Intervals and p-values. So that P-value less than 0.05 or CI not containing one was taken as significant association.

4.14 Data Quality Management

The following key strategies were used for data quality control:-

- All data collection tools were translated to local language and back translated to English by people who have proficiency in translation to ensure its consistency.

- Training of data collectors and supervisors were made to enable them acquire basic skills necessary for data collection and supervision.
- Pre-testing of data collection tool was made
- Necessary adjustments to the data collection tools were made.
- Codes were given to the questionnaires and HH during the data collection so that any identified errors were traced back using the codes.
- Spot check was done on the field.
- Filled questionnaires were checked daily for completeness. In case of incomplete data collectors were re visited. At least 5% randomly selected were checked by PI.

4.15 Ethical clearance- Since the study design is cross sectional no harm on health and social life of the study groups is expected. In addition willingness to participate in the study was ensured and Ethical clearance was also obtained from the Research and Ethics Committee (REC) of the Addis Ababa University School of Public Health and respective bodies. To collect data informed consent was first obtained from study participants, providing information on the purpose of the study, the importance of their participation, benefit and risks of the study and true response. It is also explained that the study will have no connection with individual affairs of respondents. No name or any identifier was registered to ensure confidentiality. All sample populations were encouraged to participate in the study while at the same time they were told their right not to participate.

4.16 Dissemination of results

The result of this research will be disseminated freely for the community, to staff, managers of health and health related services, to researchers and donor agencies and in general to all stakeholders through regional meetings, district meetings, staff meetings, through digital library and also will be accessible in Addis Ababa University, School of Public Health library and finding of this research will be published communicating concerning bodies.

5. RESULTS

5.1 Socio-Demographic Characteristics of Respondents.

A total of 664 women of child bearing age (15-49 years) who had given birth in the preceding two years prior to the survey were interviewed giving response rate of 100 percent. From 664 women 301 (45.3%) aged 25-29, and 137(20.6%) were aged 20-24 years. Six hundred fifty four (98.5%) of the respondents were currently married with median age at first marriage of 18years.

More than half of the respondents, 377(56.8%) have never attended any formal education and 175(26.4%) were attended Primary Education. Among the respondents, 425(64%) are protestants. Almost all, 661(99.5%) are Oromo Ethnic groups. With regard to respondents occupation 583(87.8%) are house wives and only 15(2.3%) were engaged in paying jobs. Concerning their husbands 218(32.8%) have never attended any formal education and 68(10.2%) were at least completed secondary education and 44(6.7%) were employed in government or private firms.

Regarding the total household monthly income, 584(88%) earn 500ETB or less and 288(43.4%) earn below the median value 200ETB. Five hundred twenty (78.3%) of decision concerning household expenditure was made by both the husband and wife where as 110(16.6%) was made by husband alone. Only 188(28.3%) of the respondents were living in less than one hour distance from the nearby health institution and 476(71.7%) should travel over one hour. Four hundred ninety seven (74.8%) use on foot mode of transportation to reach health facility. (Table1).

Table 1. Socio demographic characteristics of study participants on factors affecting place of delivery in Nunu Kumba, East Wollega, Oromia, Ethiopia 2013 (n=664).

Variable (n=664)	Frequency	%
Maternal Age		
15-19	26	3.9
20-24	137	20.6
25-29	301	45.3
30-34	110	16.6
35 & above	90	13.6
Marital status		
Married	654	98.5
Other*	10	1.5
Educational status		
Illiterate	377	56.8
Read and Write	94	14.2
Primary Education(1-8)	175	26.4
Secondary Education(9 & above)	18	2.7
Religion		
Muslim	58	8.7
Orthodox	181	27.3
Protestant	425	64.0
Ethnicity Oromo	661	99.5
Amhara	3	0.5
Respondent's Occupation		
Farmer	20	3.0
Gov't Employee	10	1.5
House wife	583	87.8
Merchant	45	6.8
Other**	6	1.0
Husband's educational status		
Illiterate	218	32.8
Read and Write	139	20.9
Primary Education(1-8)	239	36.0
Secondary Education(9 & above)	68	10.2
Husband's occupation		
Farmer	560	84.3
Gov't Employee	35	5.3
Merchant	52	7.8
Other***	17	2.7

House Hold monthly income.		
=<500	584	88.0
501-1000	62	9.3
1001-1500	14	2.1
>=1501	4	0.6
Decision maker for HH expenditures.		
Husband	110	16.6
Housewife	34	5.1
Both	520	78.3
Estimated distance		
<1hr	188	28.3
>=1hr	476	71.7
Mode of transport used		
On foot	497	74.8
On horse/mule back	20	3.0
Local stretcher	141	21.2
Vehicle	6	0.9

*Separated and Widowed ** Private Employee, Student ***Private Employee, Daily Laborer, Wood Work

5.2 Reasons for preference of place of delivery

Regarding choice of place of delivery, 557(83.9%) of the respondent's preferred health institution and 107(16.1%) home for their delivery place .Their main reason for preferring health institution is better service accounting 85.3% followed by safe and clean delivery with 83.3%. From those who preferred home delivery the main reason is previous home delivery was normal accounting 57.9% and need to be with relatives and facility too far accounting 43.9% and 40.2% respectively. Figure , 3, 4 & 5 below.

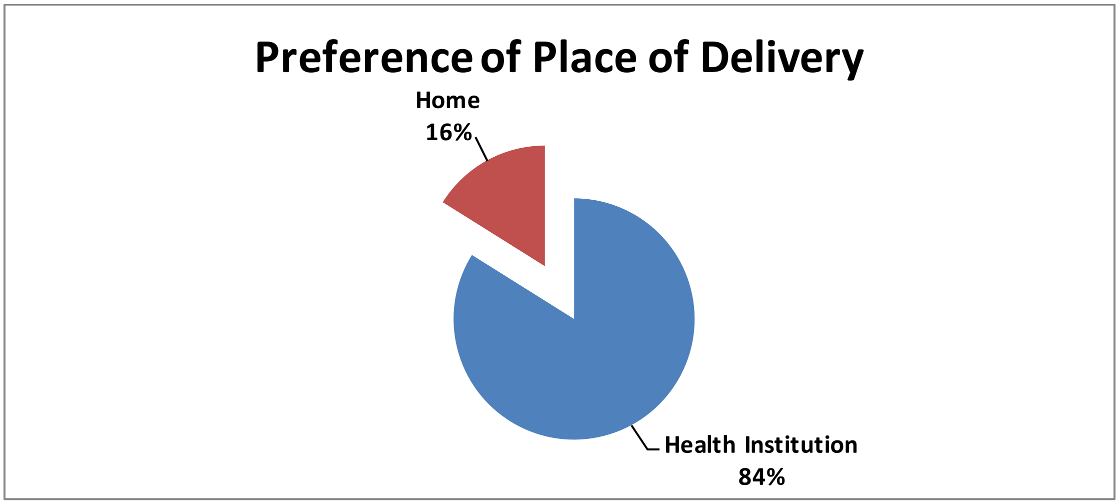
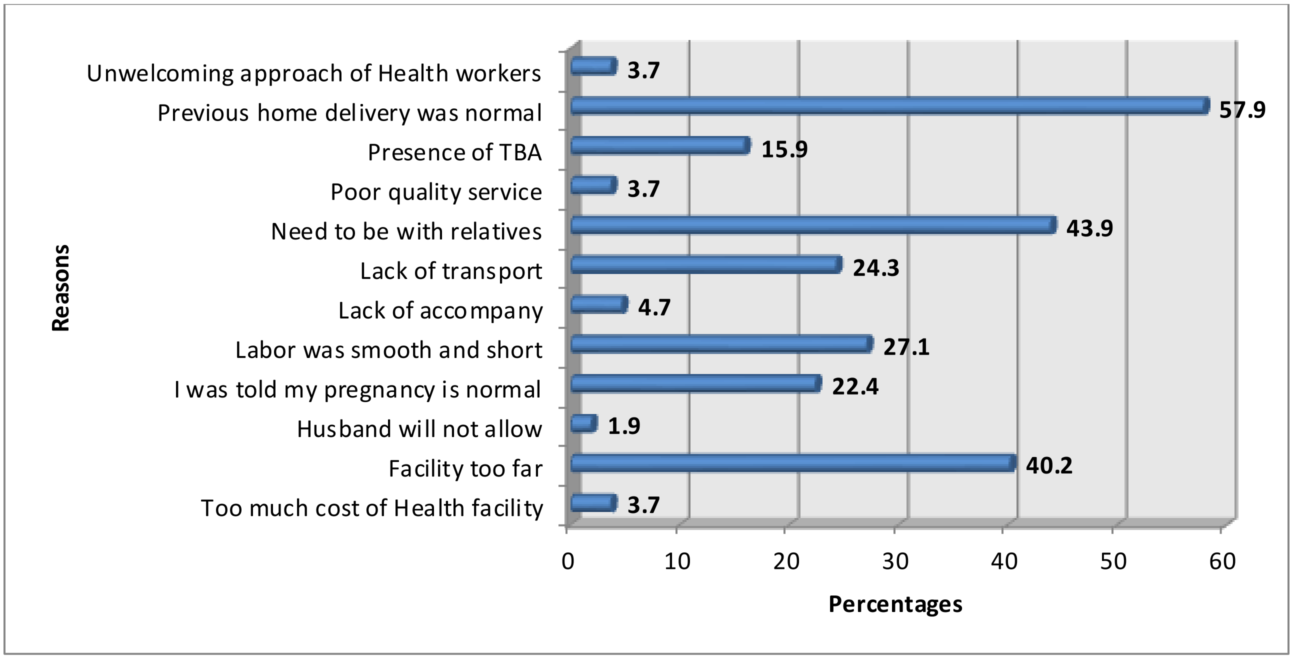


Fig-3 Preference of place of delivery Nunu Kumba, East Wollega, Oromia, Ethiopia, June 2013.

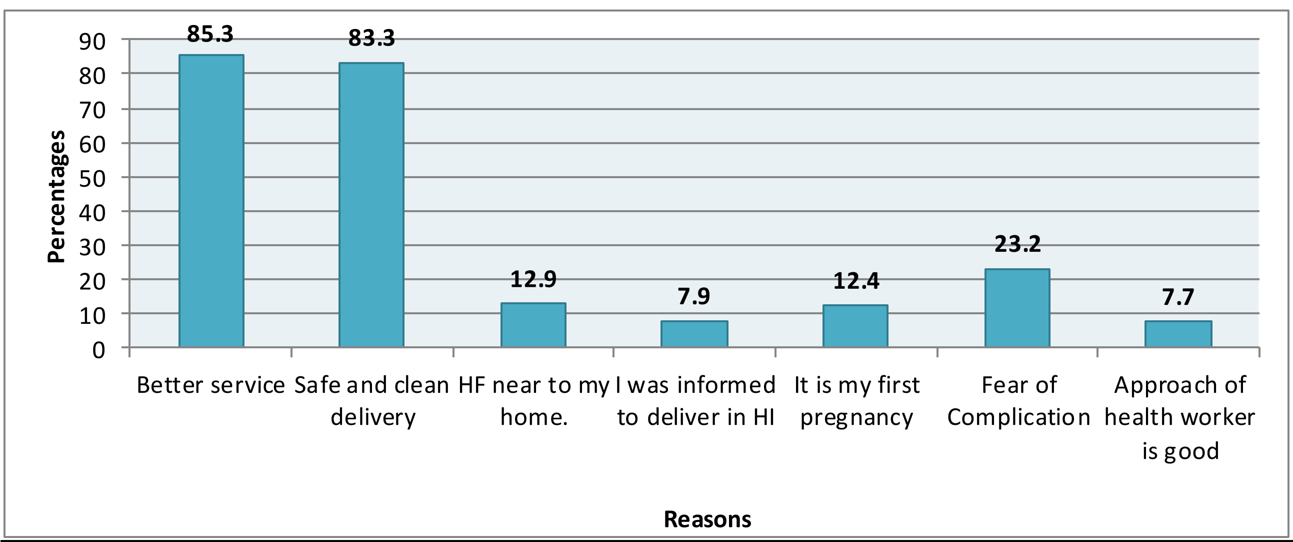
Reasons for preference of home delivery



- More than one possible answer was used

Fig-4 Reasons for preference of home delivery, Nunu Kumba, East Wollega, Oromia, Ethiopia, June 2013.

Reasons for preference of Health Facility delivery.



- More than one possible answer was used

Fig-5 - Reasons for preference of Health Facility, Nunu Kumba, East Wollega, Oromia, June 2013.

5.3 Women's decision making and source of information.

In majority of the respondents, (83.9%) the decision is made by both husband and wife concerning preference of place of delivery. Of all the respondents, 121(18.2%) of their husband's preferred home and 543(81.8%) health institution for their wives. In the last two years preceding the survey, 257(38.7%) of mothers delivered their last child at health institution with skilled birth attendant being 247(37.2%) and 407(61.3%) delivered at home. More than half (50.2%) of home deliveries were conducted by neighbors followed by mother-in-law accounting 149(22.4%). Among those delivered in health institution, 206(31%) of deliveries were conducted by midwifery and 10(1.5%) by HEWs. Majority, 614(92.5%) of the respondents prefer health institution and 50(7.5%) prefer home for their next delivery.

Regarding the information, 621(93.5%) of the respondents replied as having information on the benefit of delivering in health institution where as 43(6.5%) had no any information on benefit of delivering in health institution. Health workers, 591(89%) were mentioned as the most source of information and only 7(1.1) of the respondents received traditional medication. (Fig 6, 7 & table-2).

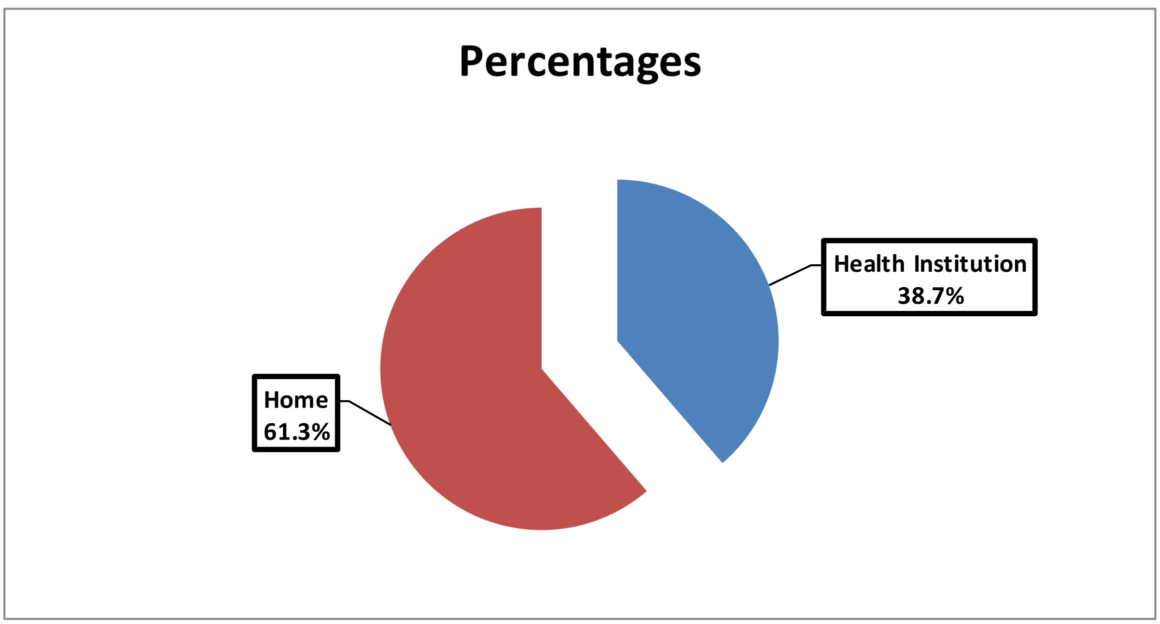


Fig-6 Proportion of place of delivery in the last two years, Nunu Kumba, East Wollega, Oromia, Ethiopia, June 2013.

Deliveries Conducted at home

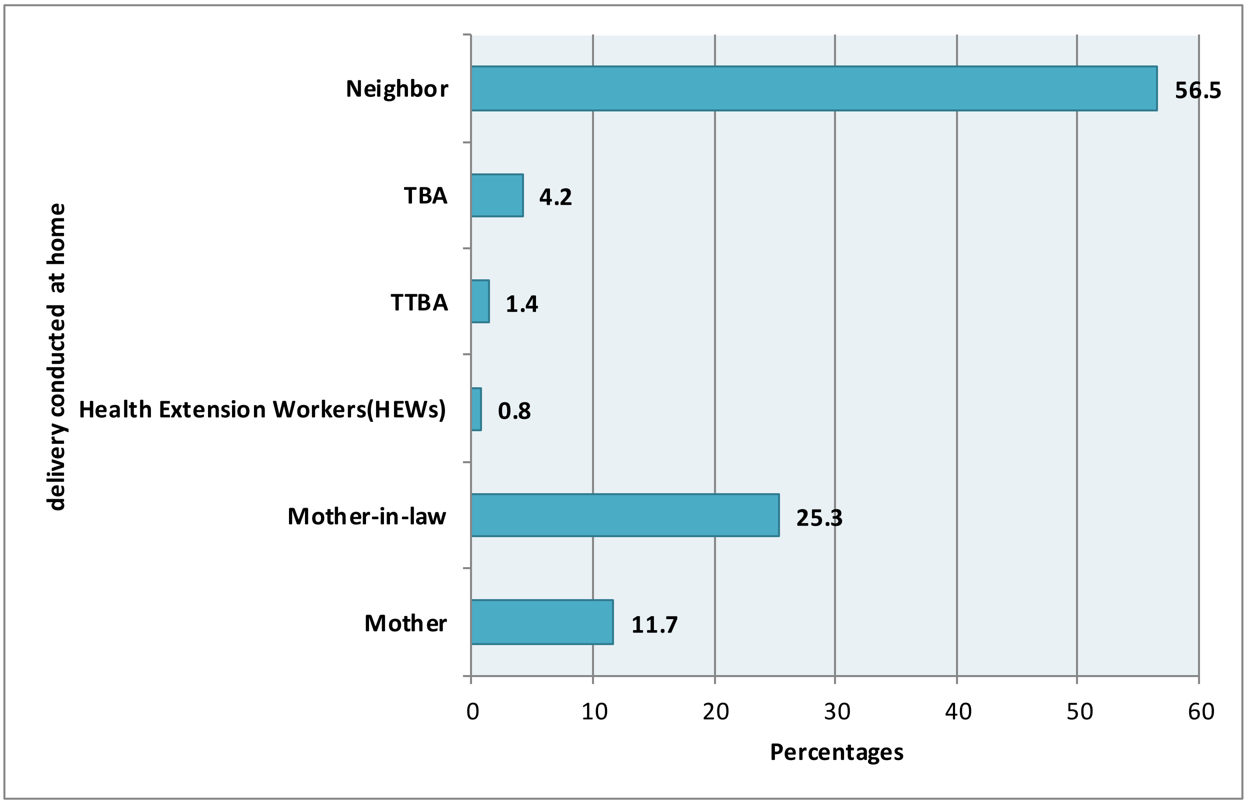


Fig-7 Percentages of deliveries conducted at home, Nunu Kumba, East Wollega, Oromia, Ethiopia, June 2013.

Table 2. Women's decision making and source of information on place of delivery in Nunu Kumba, East Wollega, Oromia, Ethiopia, 2013 (n=664).

Variable(n=664)	Frequency	%
Decision on place of delivery		
Just me	75	11.3
Husband	32	4.8
Both	557	83.9
Choice of husband to maternal place of delivery		
Health Institution	543	81.8
Home	121	18.2
Place of delivery in the last two years		
Health Institution	257	38.7
Home	407	61.3
If at home who assisted you		
Mother	69	10.4
Mother-in-law	149	22.4
Health Extension Workers(HEWs)	5	0.8
TTBA	8	1.2
TBA	25	3.8
Neighbor	333	50.2
If at health facility who assisted you		
Health Extension Workers	10	1.5
Nurse	63	9.5
Midwifery	206	31.0
Health officer	15	2.3
I don't remember	22	3.3
Place of next delivery		
Health Institution	614	92.5
Home	50	7.5
Information access about the benefit of delivery in health institution		
Yes	621	93.5
No	43	6.5
Traditional medication given to the mother during child birth at home		
Yes	7	1.1
No	657	98.9

Awareness on any health risks a woman might experience during pregnancy		
Yes	598	90.1
No	66	9.9
Do you think giving birth at home has risks		
Yes	597	89.9
No	67	10.1
Do you know that most complications of labor are preventable		
Yes	607	91.4
No	57	8.6

5.4 Women's Past Obstetrical Characteristics

Four hundred nine (61.6%) of the women were married at the age of 18 and above and about 17.5% of the first pregnancy occurred below 18 years old. Four hundred nine (61.6%) of the respondents had 2-4 total pregnancy with 432(65.1) of them having 2-4 children. Regarding antenatal care 559(84.2%) attended the service at least once for their last delivery and 310(46.7%) of them had 2-4 visits. Two hundred fifty three (38.1%) have seen midwifery during their visit for antenatal care. Among interviewed mothers 104(15.7%) of the pregnancy were not planned and 127(19.1%) faced obstetric difficulties (hemorrhage, obstructed labor) of which 87(13.1%) visited the health facility (Table-3).

Table-3 Women's Past Obstetrical characteristics of Nunu Kumba, East Wollega, Oromia, Ethiopia, 2013 (n=664).

Variable (n=664)	**Frequency**	**%**
Age at first marriage		
<18	255	38.4
>=18	409	61.6
Age at first pregnancy		
<18	116	17.5
>=18	548	82.5
Age at Last pregnancy		
<30	531	80.0
>=30	133	20.0
Gravidity/total number of pregnancy		
1	108	16.3
2-4	409	61.6
>=5	147	22.1
Parity/total number of births		
0-1	120	18.1
2-4	432	65.1
5 & above	112	16.9
Birth Order of last child		
1	115	17.3
2-4	410	61.7
5 & above	139	20.9
Did you attend antenatal care for your last pregnancy		
Yes	559	84.2
No	105	15.8
Number of ANC visits you had for last antenatal		
1	198	29.8
2-4	310	46.7
>=5	51	7.7
Health worker visited during last ANC visit		
Health Extension Worker	115	17.3
Midwifery	253	38.1
Nurse	184	27.7
Health Officer	7	1.1
Was the pregnancy Planned		
Yes	560	84.3
No	104	15.7
Any obstetric difficulties in previous delivery		
Yes	127	19.1
No	537	80.9

Specific measures taken		
Nothing	18	14.2
Visit Health Institution	87	68.5
Traditional(massage, herbs)	22	17.3

5.5 Attitude towards health service Utilization

Almost all 656(98.8%) of the respondents responded that there is a presence of health service facility in their area and 595(89.6%) are satisfied with the service being provided among the users 607(91.4%). Facility too far (26.3%), previous delivery normal (22.8%) and lack of knowledge (12.5%) are among the responses for not using the service ever. The main reasons for not being satisfied with the services are, unpleasant approach of health workers, the service kills time and the cost of the service is unfair and expensive are among the mentioned ones. Concerning delivery service provider's attitude, 467(70.3%) responded as good and 571(86%) mentioned the service as free of charge (Table 4).

Table-4 Health service factors that affect preference of place of delivery in Nunu Kumba, East Wollega, Oromia, Ethiopia 2013(n=664)

Variable	**Frequency**	**%**
Is there any health service which gives delivery service in your area		
Yes	656	98.8
No	8	1.2
Have you ever used delivery service		
Yes	607	91.4
No	57	8.6
Satisfaction with delivery services		
Yes	595	89.6
No	33	5.0
If No what is the reason (for those not satisfied)		
It kills time	7	21.2
Unable to perform cultural ceremonies	2	6.1
Unfair and expensive price	5	15.2
Unpleasant approach of health workers	17	51.5
Service Provider attitude.		
Poor	15	2.3
Satisfactory	142	21.4
Good	467	70.3
Payment for delivery service		
<100	31	4.7
>100	20	3.0
Free of charge	571	86

5.6 Bivariate and Multivariate analysis

5.6.1 Bi variate analysis

Crude analysis of socio-demographic variables on binary logistic regression showed that maternal age, residence, respondents educational status, respondents occupation, husband educational status, husband's occupation, household monthly income, decision maker for any household expenditure, ANC attendance, age at first marriage, age at first pregnancy, gravidity, parity, number of ANC visit and mode of transport to health facility showed statistical association with maternal preference of place of delivery (Table 5, 6, & 7)

5.6.2 Multi variate analysis

A multivariate analysis involving all associated variables which are significant on bivariate analysis ($p<0.05$) was performed to identify independent predictors of choice of place of delivery. Consequently, maternal age, maternal education, husband's education, mode of transportation, age at first marriage, antenatal care attendance, number of ANC visit, planning of pregnancy and choice of husband to maternal place of delivery were independently shown to have significance association with preference of maternal place of delivery.

Lower maternal age is less likely associated with home delivery compared to higher maternal age (AOR= 0.33; 95% CI =0.11, 0.96). Mothers with primary education are less likely to give birth at home compared to mothers who are illiterate (AOR= 0.50; 95% CI=0.28, 0.92). Husband's educational status also tends to be significantly associated with place of delivery. Those mothers whose husband's educational status was at least primary education were less likely to give birth at home (AOR= 0.31; 95% CI=0.16, 0.59).

Mothers who use horse/mule back and vehicle as a means of transportation to the health facility were less likely to prefer home for delivery compared to on foot (AOR=0.15; 95% CI=0.04, 0.54). Women with age at first marriage of 18 or more years were 2 times more likely to give birth at home compared to less than 18 years old (AOR=2.07; 95%CI=1.03, 4.17). ANC attendance is also independently associated with preference of place of delivery. Those who did not attended ANC for their last pregnancy were7.8 times more likely to give birth at home compared to ANC attendants (AOR=7.81; 95% CI= 2.23, 27.3). Women with 2-4 visit of ANC for their last pregnancy were less likely to choose home delivery compared to those who had no any visits (AOR= 0.14; 95% CI=0.05, 0.39).

Those mothers who did not planned their pregnancy were less likely to give birth at health facility compared to those mothers who planned their pregnancy (AOR= 0.40; 95% CI=0.19, 0.83). In mothers whose husband's prefer health institution for delivery, the mothers are less likely to deliver at home compared to mothers whose husband prefer home for delivery (AOR= 0.27; 95%CI=0.07, 0.95). Table 5, 6 & 7 below.

Table-5 Association of Selected socio-demographic variables with preference of place of delivery among women's of child bearing age, Nunu Kumba, East Wollega, Oromia, Ethiopia, 2013.

Variables	No (%)	Place of delivery: Home No (%)	Place of delivery: HI No (%)	Crude OR (95% CI)	Adjusted OR (95% CI)
Maternal Age					
15-19	26(3.9)	11(2.7)	15(5.8)	**0.38(0.15-0.93)**	0.65 (0.11-3.73)
20-24	137(20.6)	60(14.7)	77(30.0)	**0.40(0.23-0.71)**	**0.33 (0.11-0.96)**
25-29	301(45.3)	195(47.9)	106(41.2)	0.96(0.58-1.58)	0.86 (0.39-1.93)
30-34	110(16.6)	82(20.1)	28(10.9)	1.53(0.83-2.83)	0.78 (0.32-1.89)
35 & above	90(13.6)	59(14.5)	31(12.1)	1.00	1.00
Residence					
Urban	66(10.0)	21(5.2)	45(17.5)	1.00	1.00
Rural	598(90.0)	386(94.8)	212(82.5)	**3.90(2.26-6.72)**	3.34 (0.73-15.3)
Educational status					
Illiterate	377(56.8)	274(67.3)	103(40.1)	1.00	1.00
Read and Write	94(14.2)	75(18.4)	19(7.4)	1.48(0.85-2.57)	1.49 (0.68-3.26)
Primary (1-8)	175(26.4)	53(13.0)	122(47.5)	**1.16(0.11-0.24)**	**0.50 (0.28-0.92)**
Secondary & above	18(2.7)	5(1.2)	13(5.0)	**0.14(0.05-0.41)**	1.83(0.29-11.25)
Occupation					
Farmer	20(3.0)	9(2.2)	11(4.3)	2.45(0.58-10.29)	1.49(0.11-20.23)
House wife	583(87.8)	374(91.9)	209(81.3)	**5.36 (1.71-16.85)**	4.04(0.42-39.17)
Merchant	45(6.8)	20(4.9)	25(9.7)	2.40 (0.67-8.59)	2.80(0.27-29.64)
Other##	16(2.5)	4(1.0)	12(4.7)	1.00	1.00
Husband's educational status					
Illiterate	218(32.8)	185(45.5)	33(12.8)	**1.00**	1.00
Read and Write	139(20.9)	107(26.3)	32(12.5)	0.60(0.35-1.03)	0.72 (0.36-1.43)
Primary (1-8)	239(36.0)	86(21.1)	153(59.5)	**0.10(0.06-0.16)**	**0.31 (0.16-0.59)**
Secondary & above	68(10.2)	29(7.1)	39(15.2)	**0.13(0.07-0.24)**	0.95(0.35-2.54)
Husband's occupation					
Farmer	560(84.3)	373(91.6)	187(72.8)	1.00	1.00
Gov't Employee	35(5.3)	7(1.7)	28(10.9)	**0.12(0.05-0.29)**	0.26(0.05-1.31)
Merchant	52(7.8)	22(5.4)	30(11.7)	**0.36(0.20-0.65)**	1.90(0.47-7.67)

Other###	17(2.7)	5(1.2)	12(4.7)	**0.20(0.07-0.60)**	0.31(0.04-2.17)
House Hold monthly income.					
=<500	584(88.0)	369(90.7)	215(83.7)	1.00	1.00
501-1000	62(9.3)	32(7.9)	30(11.7)	0.62(0.36-1.05)	0.53(0.21-1.31)
1001-1500	14(2.1)	5(1.2)	9(3.5)	**0.32(0.10-0.97)**	1.32(0.17-10.06)
>=1501	4(0.6)	1(0.2)	3(1.2)	0.19(0.02-1.87)	10.1(0.58-56.05)
Decision maker for HH expenditures.					
Husband	110(16.6)	49(12.0)	61(23.7)	**0.44(0.29-0.66)**	0.65 (0.34-1.24)
Housewife	34(5.1)	22(5.4)	12(4.7)	1.00(0.48-2.07)	0.61 (0.15-2.40)
Both	520(78.3)	336(82.6)	184(71.6)	1.00	1.00
Mode of transportation					
1. On foot	497(74.8)	322(79.1)	175(68.1)	1.00	1.00
2. Local stretcher	141(21.2)	75(18.4)	66(25.7)	**0.61(0.42-0.90)**	0.71(0.39-1.32)
3.Other****	26(3.9)	10(2.5)	16(6.2)	**0.34(0.15-0.76)**	**0.15(0.04-0.54)**

****On horse/mule back, vehicle ## private employee, student ### private employee, daily laborer, wood work

Table-6 Association of women's past obstetrical factors among women's of child bearing age, Nunu Kumba, East Wollega, Oromia, Ethiopia 2013.

Variables	No (%)	Place of delivery		Crude	Adjusted
		Home No (%)	HI No (%)	OR (95% CI)	OR (95% CI)
Age at first marriage					
<18	255(38.4)	115(28.3)	140(54.5)	1.00	1.00
>=18	409(61.6)	292(71.7)	117(45.5)	**3.03(2.19-4.21)**	**2.07(1.03-4.17)**
Age at first pregnancy					
<20	439(66.1)	239(58.7)	200(77.8)	1.00	1.00
>=20	225(33.9)	168(41.3)	57(22.2)	**2.46(1.73-3.51)**	0.75 (0.37-1.53)
Gravidity					
1	108(16.3)	53(13.0)	55(21.4)	**0.41(0.24-0.69)**	0.34 (0.01-11.06)
2-4	409(61.6)	251(61.7)	158(61.5)	0.67(0.45-1.01)	3.04 (0.29-31.64)
>=5	147(22.1)	103(25.3)	44(17.1)	1.00	1.00
Parity					
0-1	120(18.1)	63(15.5)	57(22.2)	**0.33(0.19-0.58)**	9.41 (.379-33.56)
2-4	432(65.1)	258(63.4)	174(67.7)	**0.44(0.27-0.72)**	0.58 (0.14-2.44)
5 & above	112(16.9)	86(21.1)	26(10.1)	1.00	1.00
ANC attendance for last pregnancy					
Yes	559(84.2)	310(76.2)	249(96.9)	1.00	1.00
No	105(15.8)	97(23.8)	8(3.1)	**9.73(4.64-20.41)**	**7.81 (2.23-27.3)**
No of ANC visits for last pregnancy.					
0	105(15.8)	97(23.8)	8(3.1)	1.00	1.00
1	198(29.8)	172(42.3)	26(10.1)	0.55(0.24-1.25)	0.98 (0.32-3.02)
2-4	310(46.7)	117(28.7)	193(75.1)	**0.05(0.02-0.11)**	**0.14(0.05-0.39)**
>=5	51(7.7)	21(5.2)	30(11.7)	**0.06(0.02-0.14)**	0.33 (0.09-1.31)
Pregnancy Planned					
Yes	560(84.3)	354(87.0)	206(80.2)	1.00	1.00
No	104(15.7)	53(13.0)	51(19.8)	**0.60(0.39-0.92)**	**0.40 (0.19-0.83)**
Birth Order					
First	115(17.3)	59(14.5)	56(21.8)	**0.41(0.26-0.73)**	0.39(0.01-10.45)
Second	110(16.6)	64(15.7)	46(18.0)	0.58(0.34-0.98)	0.95(0.11-7.90)
Third	145(21.8)	95(23.3)	50(19.5)	0.79(0.48-1.31)	0.82(0.10-6.34)
Fourth	155(23.3)	91(22.4)	64(24.9)	**0.59(0.36-0.96)**	0.98(0.14-6.66)
Fifth & above	139(20.9)	98(24.1)	41(16)	1.00	1.00
Obstetric difficulties in previous delivery					
Yes	127(19.1)	58(14.3)	69(26.8)	**0.45(0.30-0.67)**	0.95(0.48-1.89)
No	537(80.9)	349(85.7)	188(73.2)	1.00	1.00

Table-7 Association of preference, information and health service factors on place of delivery among women's of child bearing age, Nunu Kumba, East Wollega, Oromia, Ethiopia 2013.

Variables	No (%)	Place of delivery		COR (95% CI)	AOR (95% CI)
		Home No (%)	HI No (%)		
Choice of husband to your place of delivery					
Health Institution	543(81.8)	309(75.9)	234(91.1)	**0.31(0.19-0.50)**	**0.27(0.07-0.95)**
Home	121(18.2)	98(24.1)	23(8.9)	1.00	1.00
Inform^{n} on benefit of delivery in HI.					
Yes	621(93.5)	365(89.7)	256(99.6)	**0.03(0.01-0.24)**	0.40(0.02-6.58)
No	43(6.5)	42(10.3)	1(0.4)	1.00	1.00
Awareness on risks a woman experience during pregnancy					
Yes	598(90.1)	355(87.2)	243(94.6)	1.00	1.00
No	66(9.9)	52(12.8)	14(5.4)	**2.54(1.37-4.69)**	2.00(0.40-10.01)
Do you think giving birth at home has risks					
Yes	597(89.9)	351(86.2)	246(95.7)	1.00	1.00
No	67(10.1)	56(13.8)	11(4.3)	**3.56(1.83-6.94)**	0.78(0.12-4.76)
Awareness on complications of labor are preventable					
Yes	607(91.4)	359(88.2)	248(96.5)	1.00	1.00
No	57(8.6)	48(11.8)	9(3.5)	**3.68(1.77-7.64)**	1.32(0.22-7.88)
Service Provider attitude.					
Poor	15(2.3)	9(2.2)	6(2.3)	0.91(0.32-2.61)	0.61(0.05-6.8)
Satisfactory	142(21.4)	68(16.7)	74(28.8)	**0.56(0.38-0.81)**	0.98(0.56-1.70)
Good	467(70.3)	290(71.3)	177(68.9)	1.00	1.00

6. DISCUSSION

This community-based study has attempted to identify factors affecting place of delivery among women's of child bearing age in East Wollega Zone, Nunu Kumba woreda, Oromia Regional State, Ethiopia. Consequently, factors influencing place of delivery services in the woreda were identified. Most of these findings are consistent with most studies conducted elsewhere in Ethiopia and abroad.

This study showed that institutional delivery two years prior to the survey was 38.7%. This finding was high when compared with the EDHS 2011 which showed that the percentage of deliveries attended by skilled health personnel was 10% and HMIS report was 16.6% nationally and 17.7% in Oromia Region (11, 12). This might be due to the time gap i.e. since 2011 there might have been improvements in accessing and utilizing of the service. Clean and safe delivery service training given for HEWs also might have improved the service and sharing kebele for health workers to support HEWs also might have increased awareness of the community. The result was in line with that of a study done in East Hararge Zone, Oromia Region in 2011 which indicated institutional delivery to be 36.5%(19), study done in Woldiya in 2013 which showed institutional delivery was 48.3% in the area (41) and that of Nchelenge district, Zambia which is 43%(10).

This study revealed that maternal age, maternal education, husband's education, age at first marriage, ANC attendance, number of ANC visits, planning of pregnancy, choice of husband to place of delivery, and mode of transport to reach health facility showed statistical association independently with maternal choice of delivery place.

Age of mothers at time of interview showed independent association with maternal place of delivery. Those mothers whose age was twenty to twenty four were less likely to give birth at home when compared with those greater or equal to 35 years old (AOR= 0.33; 95% CI=0.11, 0.96). This study was in line with study conducted in East Hararge Zone, South East Ethiopia, North Gondar and SNNPR (19, 32, 42, 43) . The possible explanation for this could be that younger women were more likely to be more literate than older women, and that older women tended to consider giving birth at home not so risky as it has been their usual experience. Furthermore, older women might belong to a more traditional cohort and thus be less likely to use modern facilities as compared to younger women.

Similar to other studies in Ethiopia, Nigeria and India (19, 20, 29, 43-45) Women education is another predictor of place of delivery. Those mothers who attended primary education were less likely to give birth at home compared to illiterate mothers (AOR=0.50; 95% CI=0.28, 0.92). Education leads to better health awareness, and this may sensitize the family to the quality of health care provided at various facilities. Educated women could have better access to information through reading and following media about maternal health care and they could have better knowledge about the advantages of maternal health care and pregnancy related complications. Education is likely to enhance the status of women and enable them to develop greater confidence and capacity to make decisions about their own health and expected to increase institutional delivery.

Husbands' educational level was also one of the factors that predicted maternal place of delivery. Those mothers whose husband's educational status was primary education were less likely to give birth at home compared to illiterate (AOR= 0.31; 95% CI=0.16, 0.59). The possible explanation for this might be that educated husbands might be more open toward modern medicine and aware of the benefits of giving birth at health facilities. They might also put fewer constraints on their wives' mobility and decision making, thus facilitating care-seeking. This study is in line with study conducted in Ethiopia (19, 32).

Birth order showed statistical association in crude analyses but did not showed independently after adjusting for significant variables. Unlike this study, different studies indicated that birth order is strong predictor of place of delivery (11, 42). A possible explanation for this could be women develop confidence and may believe that modern health care is not as necessary due to the experience, self efficacy and knowledge accumulated from previous pregnancies and births.

Unlike other studies (11, 32, 42, 46), this study did not show independent association of residence on preference of choice of place of delivery. The reason may be that the towns are small and do not have significant difference in many aspects with that of the nearby rural kebeles.

The proportion of women who received antenatal care at least once for their recent births were 84.2%.This finding was very high when compared to EDHS 2011 which is 34% nationally and 31.4% in Oromia Region. The possible reason is time gap and increased effort i.e. since 2011 there may be improvement in service provision and community awareness may increased due to sharing of kebeles for health workers to mobilize community and to provide health education supporting

HEWs on pursuing the extension package. This study is in line with the study conducted in Hadiya Zone in 2009 showing the ANC utilization coverage of 86.3%(47).

ANC attendance showed independent association with maternal place of delivery. Those mothers who did not attended ANC for their last pregnancy were 7.8 times more likely to give birth at home compared to ANC attendants (AOR=7.81; 95% CI=2.23, 27.3). The possible explanation is that women who had no antenatal care follow up couldn't received advice and health education about pregnancy related complications and advantages of giving birth at a health facility and hence assisted by neighbors and mother-in-laws . This study is in line with study conducted in Tigray Region and East Hararge Zone (15, 19) in which ANC is independent predictor of choice of place of delivery too. Another study from rural Andhra Pradesh, India also revealed that pregnant women who had adequate prenatal care were almost twice as likely to undergo skilled institutional delivery compared with those without such care. It is likely that counseling on place of birth and provision of information during prenatal check-ups influenced the women's decision(24).

Unlike to the other studies (19, 43), this study pointed out that age at first marriage had strong association with place of delivery. Mothers whose age at first marriage were 18 years or more are 2 times more likely to give birth at home when compared with those who are less than 18 years old (AOR=2.07; 95% CI=1.03, 4.17). A possible explanation for this could be women develop confidence and may believe that modern health care is not as necessary due to the experience, self efficacy and knowledge accumulated from previous pregnancies and births. On the other hand, women who are pregnant before 18 years are usually more likely to have difficulties during labor and delivery than women of higher parity, so that they tend to fear home deliveries. This study is in line with study conducted in Sheka Zone, SNNPR, South West Ethiopia(43).

Similarly, mothers who had 2-4 ANC visit were less likely to give birth at home compared to those who had no any visits (AOR= 0.14; 95% CI=0.05, 0.39). This is in line with study conducted in North Gondar indicating that mothers who didn't visited health institution during pregnancy are more likely to give birth at home(42). Similarly a study conducted in Rwanda pointed out that the odd of not delivering at home for women who attended ANC and met the goal of 4 standard visits were about 3.6 higher than those who attended only once(13). This may be due to the fact that during ANC, especially if started early, women are provided with health education and information about the benefits of having a skilled birth attendant for childbirth and also provide opportunities for health workers to promote a specific place of delivery or give women information on the status of their pregnancy which in turn alerts them to decide where to deliver.

Another interesting finding of this study is that mothers who did not planned their pregnancy were less likely to give birth at health facility compared to those mothers who planned their pregnancy (AOR= 0.40; 95% CI=0.19, 0.83). Possible explanation of this result is women whose pregnancy is desired is more likely to use institutional delivery presumably because she is more concerned about her pregnancy and the child's welfare than those whose pregnancy was not desired. This study is consistent with study conducted in rural Andhra Pradesh; India(24).

Choice of husband's place of delivery is another important factor in maternal preference of place of delivery. In this study mother's whose husbands' prefer health institution were less likely to deliver at home compared to mothers whose husband prefer home for delivery (AOR=0.27; 95%CI = 0.07, 0.95). Similar to this study a study from Arsi Zone, South-East Ethiopia showed that Women whose husbands' attitude towards institutional delivery was unfavorable were less likely to utilize the service(48). Husbands' encouragement to seek maternal health care seems to exert considerable impact on the selection of place of delivery. Women encouraged by their husbands are however more likely to use health institutions. Several studies revealed that choice of delivery place is not on the willingness of the mother alone but, also dependent upon the member of the family. A study from Pakistan showed that about 45% of women with high autonomy, compared to 37% of women with low autonomy had their last delivery at a health facility(17). Similarly a study conducted in Uganda also indicated that 25% of decision at the onset of labor about where to go for delivery was made by the husband alone(49).

In this study the mode of transportation used to reach health facility showed effect on choice of maternal place of delivery. Those mothers who use Horse/Mule back and vehicle as a means of transportation to the health facility were less likely to prefer home for delivery compared to on foot (AOR=0.15; 95% CI=0.04, 0.54). Because walking many kilometers is difficult in labour and impossible if labor starts especially at night. Even if the transportation is available, the accommodation cost that they might face to give birth in a distant health facility is often blamed for the low rate of utilization of delivery care services. This study is in line with the analysis of EDHS 2000 and 2005 conducted in Ethiopia(40).

Strengths and Limitations of the study

Strengths

- Use of validated data collection instrument
- Absence of non responses.

Limitations

- There could be recall bias since the women were asked for events within the last two years prior to the survey. However, the most recent births were considered and local events were utilized to remind them.
- Since the design is cross sectional temporal relations could not be assessed.
- The study used only quantitative method due to time and resource constraints.
- Sample size was calculated from single population proportion hence results may be over estimated.
- Data collectors are health professionals which may result in interviewer bias.

7. CONCLUSION

- The study revealed that institutional delivery fell far below the national goal (which is 62% by 2015 according to target of HSDP IV) in the woreda.
- Lower maternal age group is less likely associated with maternal place of delivery.
- Both parental and maternal education showed significant association with maternal place of delivery.
- Age at first marriage tend to be predictor of maternal place of delivery showing variation among <18 years & >=18 years.
- ANC attendance, planning of pregnancy and number of ANC visits are independent predictors of place of delivery.
- Husband’s encouragement exerts impact on maternal place of delivery.
- Use of horse/mule and vehicle to reach health facility significantly increases institutional delivery.
- Recognition of these determinants allows for more specific targeting of interventions and strategies to identified high-risk groups of women.

8. RECOMMENDATION

Based on the findings of the study, the following recommendations were made.

The local health sector Officials:

- In collaboration with Woreda Rural Road Authorities and Participating community road has to be maintained in Kebele's where road is not comfortable for transportation (ambulance).

Health Care Providers have to give due emphasis on:

- Providing awareness for women’s and their partner’s on planning of pregnancy and risks of home delivery.
- Communicating higher age group mothers on health risks a woman might experience during child birth and risks of delivery are not predictable.
- Encouraging ANC attendance.
- Allowing the relatives to be with laboring mother when they come to health facility.
- Providing appropriate information during ANC check-ups.
- Communicating the staffs and taking corrective measures to improve service provider attitude towards laboring mother.

Further research has to be conducted:

- Mixing both quantitative and qualitative methods.
- On quality of delivery care service.

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10. ANNEXES

I. English version Questionnaire and Verbal consent

Addis Ababa University

College of Health Science

School of Public Health

Greeting!

Hello my name is---, part of a team of people who are carrying out a survey on Assessment of factors affecting Place of delivery. I would like to ask you some questions regarding the topic. The result of this study will help as an input to improve the service. This interview will take about 15 minutes. Please be assured that your name is not being recorded and any other identifying information will be kept confidential, your participation is voluntary, and you have the right to not participate fully or partially, your preference will not affect the health care you would normally receive. You may stop the interview at any time. However, we hope that you will participate in this study since your views are important. At this time, do you want to ask me anything about the survey?

May I begin the interview now? Yes---------------- No-----------------

If yes continue the interview,

If no thanks the women & proceed with next respondents.

Name of the interviewer---------------------sign-------------------Date------------

Name of the supervisor----------------------sign-------------------Date------------

Households Identification

01. Questionnaire code --------------------
02. Woreda/ Town Administration-----------------
03. Kebele-----------------------
04. House number----------------

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

Part I Respondents socio demographic characteristics.

S.No	Question and Filters	Coding Category	Skip
101	What is your age in completed years?	______________	
102	What is your current marital status?	1. Married 4. Widowed 2. Divorced 5. Single 3. Separated 6. Other specify----	
103	What is the highest grade you completed?	1. Illiterate 2. Read and write 3. primary Education (1-8) 4. 2ndry and above (9-12 and above)	
104	To which religion do you belong?	1. Orthodox 4. Catholic 2. Muslim 5. Traditional 3. Protestant 6. Other, specify---	
105	To which ethnic group do you belong?	1. Oromo 4. Gurage 2. Amhara 5.Other, specify------- 3. Tigre	
106	What is your occupation?	1. House wife 5. Merchant 2. Farmer 6. Housemaid 3. Gov't employee 7. Student 4. Private employee 8. Other, Spec--	
107	What is the highest grade your husband completed?	1. Illiterate 2. Read and write 3. primary Education (1-8) 4. 2ndary and above (9-12 & above)	
108	What is your husband's current occupation?	1. Farmer 4. Merchant 2. Gov't employee 5. Daily laborer 3. Private employee 6. Other specify--	
109	How much is your total household income per month in ETB	____________ETB	
110	Who is the decision maker for any house hold expenditures?	1. Self 2. Husband 3. Self and Husband jointly	

		4. Other, specify-----	
111	What is the estimated distance from home to the nearby delivery institution?	___________hrs in walking hours.	
112	What mode of transport you used to reach to the health facility?	1. On foot 2. On horse/mule back 3. Local stretcher 4. Vehicle 5. Other, specify	

Part II-Women's preference on Place of delivery and the reasons for their choice.

201	Where is your choice regarding to your place of delivery?	1.Health institution 2.Home	If 1. skip to q 204
202	(For those who prefer to home delivery) .What is your main reason to prefer home delivery? (MORE THAN ONE ANSWER POSSIBLE)	1. Too much cost of HFs 10.Facility too far 2. Facility not open regularly 11. Lack of transport 3. Poor quality service of HFs 12. Presence of TBAs 4. No female provider at HFs 13. Lack of accompanies 5. Need to be with relatives 14.Husband will not allow 6. Unwelcoming approach of health workers 7. Labor was smooth and short 8. Previous HDs was normal 9. I was told my pregnancy is Normal 15. Other(specify)-----	
203	For those who prefer health institution what is your main reason(MORE THAN ONE ANSWER POSSIBLE)	1.Better service 2.Safe and clean delivery 3.HF near to my home 4.I was informed to deliver in health	

		institution 5. Fear of complication 6.The approach of health worker is best 7.other specify------	
204	Where did your last delivery take place in the last two years?	1. Health unit 2.Home	
205	If at home who assisted you?	1.Mother 3.TTBA 2.Mother –in-low 4.Neighbor 5.Health extension workers 6.TBA 7. Others specify------	
206	If at health facility who assisted you?	1. Health extension workers. 2. Nurse 3. Midwife 4.Health officer 5. Don‘t remember	
207	Where is the choice of your husband to your place of delivery?	1. Health unit 2.Home	
208	Where will your next delivery, if you become pregnant?	1.Home 2.Hospital	
209	Who decides on place of your delivery?	1. Just me 2. My husband 3.TBA 4. Both 5. Other	
210	Is there any traditional medication given to the mother during child birth at home	1.yes 2.No	If No skip to 212
211	what is the reason for medication	1.To hasten child birth 2.To relief pain 3.To prevent complication of child birth 4.Other specify----	

Part III-Obstetric Information			
301	Age at first marriage?	____________	
302	Age at first pregnancy?	____________	
303	Age at Last pregnancy?	____________	
304	Gravidity/total number of pregnancy	____________	
305	Parity/total number of births	____________	
306	How many of them did you delivered at HF	_______________	
307	According to your birth order where does the last baby belongs?	1. First 2. Second 3. Third 4.Fourth 5.Fifth and above	
308	Do you have any information about the benefit of delivery in health institution	1.Yes 2.No	
309	If yes what is the primary source of information	1. Health workers 2.Freinds, neighbors who get similar service 3.Media 4. other--	
310	Did you attend antenatal care for your last pregnancy	1.Yes 2.No	
311	How many visits you had for last antenatal?	1. 1 2. 1-4 3.>5	
312	Whom did you see during your last ANC visit?	1.Health officer 2.Nurse 3. Midwifery 4.Other, specify------	
313	Was the pregnancy Planned?	Yes 2. No	
314	Have you come across any obstetric difficulties in previous delivery? (prolonged labor, hemorrhage)	1.Yes 2.No	If No skip to q 401
315	What specific measures were taken?	1. Nothing 2.Visit health institution 3. Traditional (massage, herbs) 4. Other specify	

Part IV Health Service Factors and Perception of women on place of delivery			
401	Is there any health service which gives delivery service in your area?	1.Yes 2.No	
402	Have you used it?	1.Yes 2. No	
403	If no why?	______________________________	
404	Are you satisfied with delivery services given at health units?	1. Yes 2.No	
405	If No what is the reason	1. It kills time 2.unfair and expensive price 3.Unabl to perform cultural ceremonies 4.Unpleasant approach of health workers 5.other specify-----	
406	Delivery service Provider attitude toward laboring women	1.Poor 2.Satisfactory 3.Good	
407	Payment for delivery service	1.<100 2.>100 3.Free of charge	
408	Are you aware of any health risks a woman might experience during pregnancy?	Yes No	
409	If yes what are the risks?	1. Pregnancy related disease 2. Maternal death 3. Fetal death 4. Other specify---------------	
410	Do you think giving birth at home has risks?	Yes No	
411	If yes, what risks do you know?	1. Maternal exhaustion 2. Fetal distress 3. Maternal deaths 4. Fetal/neonatal death 5. Disease transmission from attendants	

		6. Exposure to HTPS 7. Higher post partum morbidity 8. other specify------	
412	Do you know that most complications of labour are preventable?	Yes No	

Date of data collection------------------------- Code of data collector-------------------------

Name of data collector------------------------- Signature of data collector----------------------

Name and signature of supervisor----------

II . Afan Oromo version Questionnaire and Verbal consent

Universitii Addis Ababaatti

Kolleejjii Saayinsii Fayyaa

Muummee Saayinsii Fayyaa Hawaasaa

Guca eeyyamaa fi gaaffilee afaan Oromotiin

Eyyama barreeffamaa.

Akkam Ooltan/Bultan, Nagaa kessanii !

Ani maqaankoo______________________________, kan ta'ee fi miseensa garee gaaffilee filanoo wantoota filannoo bakka da'umsaa murteessan qoratuudha. Gaaffilee muraasa kan dhimma kana ilaalan sigaafachuun barbaada. Bu'aan qorannoo kanaa tajaajila da'uumsaa amma keennamaa jiru fooyyessudhaaf ni fayyada. Gaaffii fi deebiin qo'annoo kun daqiiqaa 15 fudhachuu danda'a. Maqaa fi eenyummaan kee asi irraa kan hin mul'atne ta'uu fi kanneen asirratti galma'an iccitiin isaanii kan eegamu ta'uu akka beektu nan barbaada. Hirmaannaan kee fedhii irrati kan hundaa'e yommuu ta'u, guutummaattis ta'ee hanga murtaa'e qofa hirmaachuuf mirga qabda. Yaadni ati keennitu kun tajaajila da'uumsaa argattu irrati miidhaa hin geessisu. Haata'u malee yaadni ati kennitu baay'ee barbaachisaa waan ta'eef gaaffilee kana irratti akka hirmaattu abdiin qaba. Yeroo barbaaddetti gaaffii fi deebii kana dhaabuu/dhiisuu ni dandeessa. Qo'annoo kana ilaalchisee gaaffii qabdaa?

Gaaffilee itti fufuu nan danda'aa? Eeyyee_________________Lakkii___________________

Yoo Eeyyee ta'e gaaffii fi deebii itti fufi.

Yoo Lakkii ta'e galateeffadhuutii mana itti aanutti darbi.

Maqaa gaafataa_____________________Mallattoo_______________Guyyaa____________

Maqaa to'ataa_____________________Mallattoo_________________Guyyaa________

Mallattoo Mana Jireenyaa

01. Koodii guca gaaffii -------------------- 03. Ganda----------------------

02. Aanaa/Bul.magaalaa----------------- 04. Lakk.Manaa----------------

Qajeelfama –Gaffilee filannoo qabaniif deebii kennametti maruun/naannessun, kanneen bakka duwwaa qabaniif ammoo bakka duwwaa kenname irratti barreessaa.

Kutaa 1 Odeeffannoo hawaasummaa fi haala uummataa

101. Umuriinkee meeqa?____________________

102 .Haala Fuudhaaf heeumaa 1. Heerumeera 2. Hiikeera
3. Hin heerumne 4. gargar kan jiran
5. Abbaan manaa kan irraa du'e 6. kan biraa----------------

103. Sadarkaa barnootaa kee meeqa? 1. Hinbaranne 2. Barreessu fi dubbisuu qofa
3. sadarkaa barnoota 1^{ffaa} (1-8) 4. sadarkaa barnoota 2^{ffaa} fi oli

104. Amantaankee maali?
1. Ortodoksii 2. Musilima 3. Pheenxee 4. kaatolikii 5. Aadaa 6. Kan biraa-------

105. Sabni kee maali? 1. Oromoo 2. Amaara 3. Tigiree 4. Guraagee 5. Kan biraa---------

106 Hojiin ittiin jiraattu maali?
1. Haadha manaa
2. Q/bultuu
3. H/mootummaa
4. H/dhuunfaa
5. daldaltuu
6. H/Manakeessaa
7. barattuu
8. Kan biraa------------

107. Sadarkaan barnoota abbaa manaakee meeqa?
1. Hin baranne
2. Barreessuu fi dubbisuu qofa
3. sadarkaa barnoota 1^{ffaa} (1-8)
4. sadarkaa barnoota 2^{ffaa} fi oli

108. Hojiin abbaan manaa kee ittiin jiraatu maali?
1. Q/bulaa 2. H/mootummaa 3. Q/dhuunfaa 4.Daldalaa 5. H/guyyaa 6.Kan biraa----

109. Galiin ji'aa mana keessanii qarshii ETH. Hagam ta'aa? Qar.______________

110. Baasii mana keessaaf eenyutu murtee kennaa ?
1. Haadha manaa 2. Abbaa manaa 3. lamaan keenya 4. kan biraa---------------

111. Dhaabbatni fayyaa tajaajila da,umsaa kennu tilmaamaan hagam isinirraa fagaata?
________________sa'a Miillaan/Lukaan fagaata.

112. Dhaabbata Fayyaa deemuuf gosa geejjibaa maal fayyadamta?
1. Miillaan/Lukaan 2. Farda/Gaangoon 3. Sireedhaan 4. Konkolaataan 5. Kan biro--

Kutaa 2- Filmaata Bakka Da'umsaa fi Sababa bakka da'umsaa Filataniif.

201. Iddoon itti deessu eessa yoo ta'e filatta?
1. Dhaabbata Fayyaatti 2.Manatti ⟶ Yoo 1 ta'e 204 ttidarbi

202. (Kanneen manatti da'uu filataniif) Sababni guddaan ati manatti da'uu filattuuf maali? (DEEBII TOKKOO OL FILACHUUN NI DANDA'AMA)

1. Qar.DH.F.Waan baay'ateef 2. DH.F.waan fagaateef 3. Yeroo mara banaa waan hin taaneef 4. Hanqina Geejjibaaf 5. Tajaajilli kennamu gadi bu'aa waan ta'eef 6. Deessistuun aadaa waan jirtuuf 7.Dubartiin tajaajila laattu DH.F.waan hin jirreef 8. Namni Na geessu waan hin jirreef 9. Firootakoo waliin turuu waan barbaadeef 10. Abbaan manaakoo waan hin eyyamneef 11. Simannaan ogeessotaa gaarii waan hin taaneef 12. Miixuunkoo gabaabaa fi salphaa ture 13. Da'umsi kana duraa rakkoo waan hin qabneef 14. Ulfikoo sirrii ta'uun waan natti himameef 15. Kan biroo---------------------

203. Kanneen dhaabbata Fayyaa Filataniif Sababni maali?(DEEBII TOKKOO OL FILACHUUN NI DANDA'AMA)

1.Tajaajilli Fooyya'aan waan jiruuf 2.Tajaajila Qulqulluu fi mijawaa dha

3.DH.F dhiyoo waan ta'eef 4.Dhaabbata Fayyaatti akkan da'u waan natti himamef

5. Rakkoo dhufu sodaaf 6 Namatti dhiyeenyi ogeessotaa gaariidha.

7.Kan biroo-----------------------------

204. Mucaakee isa dhumaa waggaa lamaa asitti deesse eessattideesse?

1. Dhaabbata Fayyaatti 2. Manatti

205. Yoo manatti ta'e yeroo da'umsaa eenyutu si gargaare?

1.Haadha 2.Haadha abbaa warraa 3.Deessistuu aadaa leenjite

5. Ekisteenshinii Fayyaa 4.Ollaa 6.Deessistuu aadaa 7. Kan biraa_______

206. Yoo dhaabbata Fayyaatti deesse ta'e Eenyutu si gargaare ?

1. Hojjettuu Ekisteenshinii Fayyaa. 2. Narsii 3. Deessistuu

4. Qondaala Fayyaa 5. Hin yaadadhu

207. Abbaan warraakee Eessatti akka deessu filata?

1. Dhaabbata Fayyaatti 2.Manatti

208. Fuul duratti Yeroo Ulfa taatu eessatti dahuuf yaadda?

1. Manatti 2. Dhaabbata Fayyaatti

209. Filannoo bakka da'umsa kee irratti eenyutu murteessa?

1. Ana 2. Abbaa manaakoo 3. Anaaf abbaa warraa koo

4. Deessistuu aadaa 5. Kan biroo----------------

210. Yeroo manatti deesse qorichi aadaa siif kenname jiraa?

1. Eeyyee 2. Lakki → Yoo 2 ta'e 301 tti darbi

211. Sababni qorichi aadaa siif kennameef maali?

1.Da'umsa ariifachiisuuf 2.dhukkubbii da'umsaa hir'isuuf

3. Rakkoo da'umsaan wal qabatee dhufu maqsuuf 4. Kan biroo---------------------------

Kutaa 3- Odeeffannoo Seenaa itti Fayyadamaa Tajaajila Yaalaa Da'umsaa fi Ulfaa

301. Umuriin itti eerumte meeqa? ___________________________

302. Umuriin itti jalqaba ulfooftewoo? __________________________

303. Umurii itti mucaa dhumaa ulfooftewo? __________________________

304. Kana dura yeroo meeqa ulfoofte? _______________________________________

305. Yeroo meeqa deesse? ____

306. Faayidaa Dhaabbata Fayyaatti da'uun qabu odeeffannoo isaa qabdaa?

1. Eayyee 2. Lakki

307. Yoo Eeyyee jette Maddi odeeffannoo argattee maali?

1. Hojjettoota Fayyaati. 2. Hiriyoota fi ollaa tajaajila wal fakkaataa argatan irraati.

3. Sab-quunnamtii(Raadiyoo, TVfi gaazexaa) 4. Kan biro_____________

308. Hordoffii Kunuunsa Ulfa Da'uun duraa gootee beektaa?

1.Eeyyee 2.Lakki → 2 yoo ta'e 311 darbi

309. Eeyyee yoo ta'e yeroo meeqa?

1. 1 2. 1-4 3.>5

310. Eenyutu si ilaale?

1. Qondaala Fayyaa 2. Narsii 3.deessistuu baratte 4.Kan biroo----------------

311. Kan ulfoofte karooraan ture? 1. Eeyyee 2. Lakki

312. Kana dura rakkoon da'umsaan walqabatee si mudate jiraa? (miixuun sirra turuu, gar-malee dhiiguu) 1.Eeyyee 2.Lakki → Yoo 2 ta'e 401tti darbi

313. Yoo Eeyyee ta'e Tarkaanfiin fudhatame maal ture?

1. Homtuu hin fudhatamne. 2. Dhaabbata Fayyaan deeme.

3. Muuxannoo aadaatiin yaalame 4. Kan biro__________________

Kutaa-4 Yaadaa fi Ilaalcha haadholii Kunuunsa dhaabbata Fayyaa irratti

401. Naannoo keessan Dhaabbatni Tajaajila Da'umsaa kennu Jiraa?

1.Eeyyee 2.Lakki → Yoo 2 ta'e 406 tti darbi

402. Tajaajila Dhaabbata Fayyaatti kennamu itti fayyadamtee beektaa?

1. Eeyyee 2.Lakki → Yoo 1 ta'e 404tti darbi

403. Yoo 2 ta'e maaliif? ____

404. Tajaajila kennamutti quufteettaa? 1.Eeyyee 2.Lakki

405. Lakki yoo ta'e sababni isaa maalil?

1. Tajajilli kennamu sa'atii fudhata 2. qarshiif tajajilli wal hin madaalu

3.Seera aadaan jiru gaggeessu hindanda'an 4.simannaan ogeessotaa nama hin hawwatu 5.Kan biroo--------------------------------

406. Ilaalchi ogeessotni Dubartii deessuuf qaban maal fakkaata?

1. Gaarii miti. 2. Ga,aadha. 3. Gaariidha.

407. Kaffaltii tajaajila da'umsaa

1.<100 2.>100 3.Bilisa

408. Rakkoo ulfaan wal qabate kan dubartii ulfaa mudachuu danda'u quba qabdaa?

1. Eeyyee 2. Lakki

409. Yoo eeyyee jette maalfaa dha?

1. Dhukkuboota da'umsaan wal qabatan. 2. Du'a haadholee

3. Du'a daa'immanii 4. Kan biro__________

410. Manatti da'uun rakkoo qaba jettee yaaddaa? 1. Eeyyee 2. Lakki

411. Yoo eeyyee jette maal faa?

1. Haatii human baay'ee fixuu dandeessi. 2. Daa'imni qilleensa dhabuun hukkaamamuu danda'a. 3. Haati du'uu dandeessi. 4. Daa'imni du'uu dandeessi.

5. Dhukkuba daddarbaaf nama saaxila. 6. Aadaalee miidhaa qabanitti saaxilamuu.

7. Dhukkuba da'umsaan boodaatti saaxilamuu. 8. Kan biroo_________________

Galatoomaa!!!

Guyyaa gaafatame--------------------Koodii gaafataa------------------Maqaa gaafataa-------------------

Mallattoo gaafataa---------------------- Maqaa fi Mallattoo to'ataa----------------------------------

III. Declaration

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

Name: *Desalegn Kumera(BSc)*

Signature: ________________

Date: ____________________

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

Name: Ayele Belachew (MD, MPH)

Signature: ____________________

Date: _______________________