ADDIS ABABA UNIVERSITY
FACULTY OF MEDCINE
SCHOOL OF PUBLIC HEALTH

ASSESSMENT OF FACTORS ASSOCIATED WITH SAFE DELIVERY SERVICE UTILIZATION AMONG WOMEN OF CHILDBEARING AGE IN SHEKA ZONE, SNNPR, SOUTH WEST ETHIOPIA

BY
ABYOT ASRES (B.Sc.)

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

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Assessment of factors associated with safe delivery service utilization among women of childbearing age in Sheka Zone, SNNPR, South West Ethiopia

By

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List of Acronyms

AAU	Addis Ababa University
ANC	Antenatal Care
AOR	Adjusted Odds Ratio
CBAW	Child Bearing Age Women
CI	Confidence Interval
COR	Crude Odds Ratio
C/S	Cesarean Section
DHS	Demographic and Health Survey
EDHS	Ethiopian Demographic and Health Survey
EmOC	Emergency Obstetric Care
EPI	Expanded Program of Immunization
Epinfo	Epidemiological information
ETB	Ethiopian Birr
FP	Family planning
GHC	Growing Health center
HC	Health Center
HD	Home Delivery
HEW	Health Extension Worker
HF	Health Facility
HH	House Hold
HP	Health Post
HSDP	Health Sector Development Program
IRB	Institutional Review Board
MDG	Millennium Development Goal
MMR	Maternal Mortality Ratio
MOH	Ministry Of Health
PAD	Professionally Assisted Delivery
PI	Principal Investigator
PMTCT	Prevention of Mother to Child Transmission
RH	Reproductive Health
SD	Standard Deviation
SNNPR	Southern Nation, Nationalities and Peoples Region
SPH	School of Public Health
SPSS	Statistical Package for Social Studies
SVD	Spontaneous Vaginal Delivery
TBA	Traditional Birth Attendant
WHO	World Health Organization

Abstract

Background; Complications of pregnancy and childbirth are the leading cause of disability and death among women between the ages of 15-49. Attempts to predict these complications before they occur have not been successful. Skilled attendance at all births is considered to be the single most critical intervention for ensuring safe motherhood.

Objective; To assess factors associated with safe delivery service utilization among mothers who gave birth during last five years preceding the survey in Sheka zone.

Methodology; A cross sectional community based survey supplemented by qualitative design was conducted in Sheka Zone from February to March 2008. A multistage sampling technique was used to select the sample of 554 women. Data were collected through structured pre-tested and semi structured questionnaires and checklist. The data were entered in to Epinfo version 3.3 and analyzed on SPSS version 13 computer software. A univirate, bivirate and multivariate analyses were done using frequencies, x^2 and binary logistic regressions respectively. The study was conducted after approval of Institutional Review Board of Medical faculty, Addis Ababa University and informed verbal consent was taken from study participants.

Result; The study revealed that women's educational status, birth order, prenatal care use, previous delivery at health facility and birth complication encounter during labor were independent predictors of maternal utilization of safe delivery service. Mothers who completed at least secondary school were more likely to give birth at health facility than those uneducated (AOR= 3.26, 95% CI= 1.51-7.06). Women with birth order above four were less likely to give birth at a health facility than those with first order births AOR= 0.21, 95%CI= 0.10-0.43. Women who had encountered problems in their immediate birth and received prenatal care were more likely to give birth at health facilities AOR= 33.78 95% CI=16.44.-69.39) and (AOR= 2.55, 95% CI= 1.05 6.21) respectively.

Conclusion; Factors affecting safe delivery service utilization are related to the user (women) and provider (health system) those are interrelated to each other. Consequently women empowerment, promotion of maternal education, prenatal care utilization, information education and communication on obstetric risks and general health service expansion were recommended.

1. Introduction

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

Complications of pregnancy and childbirth are the leading cause of disability and death among women between the ages of 15-49. Approximately, 585,000 women die every year from pregnancy and childbirth complications. Every minute, 110 women in the world experience a complication in their pregnancy, and one of them will die. For each woman that dies, more than 25 others suffer a debilitating injury, often with life-long consequences. More than 90% of these deaths and morbidities occur in developing countries (2). Maternal mortality is the leading cause of premature death and disability among women of reproductive age in developing countries (3).

In Ethiopia every year there are 2.8million births, 118,000 new born deaths and 500,000 maternal disabilities (4). Maternal mortality in Ethiopia is high relative to developed countries and some developing countries. Maternal mortality ratio (MMR) for the period 1998-2004 was 673 deaths per100,000 live births (5) and similarly collected data for the period 1994-2000 showed 871 deaths per 100,000 live births. Maternal deaths accounted for 21% of all deaths of women age 15-49 (6).

The vast majority of maternal deaths and disabilities could be prevented through appropriate reproductive health services before, during and after pregnancy, and through life-saving interventions when complications arise.(2) At least 40% of all pregnant women will experience some type of complication during their pregnancies. For about 15% this complication will be potentially life threatening. Attempts to predict these complications before they occur have not been successful since most complications are unexpected.

Emergency obstetric care (EmOC) is the most important action that can be taken to reduce maternal mortality (3). Skilled attendance at all births is considered to be the single most critical intervention for ensuring safe motherhood, and has often been used as a proxy indicator for measuring effectiveness of interventions intended to reduce maternal mortality including MDG (2, 3, 7).

However, each year, approximately 60 million women give birth with the assistance of an untrained birth attendant or with no help at all. This leads to maternal death which may in turn result in death of the newborn and increases the risks of survival for the older children. It is estimated that 4 million newborns die in the first week of life every year, mostly due to problems during pregnancy and childbirth (1, 2).

Improving maternal health and reducing maternal mortality have been key concerns of several international summits and conferences since the late 1980s, including the Millennium Summit in 2000. However, maternal mortality has decreased at an average of less than 1% per year globally and approximately 0.1% annually in sub-Saharan Africa between 1990 and 2005. Reducing maternal mortality requires increased attention to improved health care for women (8).

In Ethiopia, health services are still beyond the reach of most women, particularly in rural areas. According to DHS 2005, only 28% of mothers received antenatal care from health professionals, and less than 6% of births took place in health facilities. In SNNPR, only 30.3% received ANC and less than 4% mothers delivered at health facilities. There was almost no change in the utilization of delivery service over the years 2000-2005 (5). The government is committed to improve the situation through an integrated plan at national and regional levels and implementing key internationally accepted initiatives/strategies The government has set target of reducing MMR to 350 per 100 000 live births by 2015 (9).This urges need for information on determinants of the service utilization.

However, studies concerning the issue are scarce in Ethiopia, particularly in remote areas like Sheka Zone. The few existing studies tend to be urban and institution based, focused

on magnitude of use and the range of maternal services (10-13). In addition, almost all of the studies focused only on user (women) factors. However, addressing maternal health should encompass social, cultural, health systems and health policy factors (1). In general, studies conducted so far have not been sufficiently comprehensive to address user, provider and community perspectives.

Therefore, the aim of this community based study was to assess factors influencing safe delivery service utilization in Sheka zone. It assessed both the user (women) and provider (health systems) factors inhibiting the service utilization. Consequently, the results provide baseline information for relevant stakeholders for planning and implementation of interventions in the Zone.

2. Literature Review

2.1 Magnitude of Maternal Morbidity and Mortality

Maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes (3). Between 11% and 17% of maternal deaths happen during childbirth itself and between 50% and 71% in the postpartum period (14). The principal direct determinants of maternal mortality are well established. More than 70% of maternal deaths are due to five major complications: hemorrhage (25%), infection (15%), complications of unsafe abortion (13%), hypertension (12%), and obstructed labor (8%). The rest (about 20%) are indirect causes (3, 14).

Where nothing is done to avert maternal death, natural mortality is around 1000–1500 per 100 000 births. If women were still experiencing natural maternal mortality rates today, then the scale of maternal death would be four times its current size, totaling over two million maternal deaths per year worldwide. The truth is that three quarters of these deaths are currently avoided throughout the world: nearly all the natural maternal mortality is avoided in developed countries, but only two thirds in the South-East Asia and only one third in African countries. Most of the deaths and disabilities attributable to childbirth are avoidable, because the medical solutions are well known. The challenge that remains is therefore not technological, but strategic and organizational (15).

There are immense variations in maternal death rates in different parts of the world and even within a country. Maternal deaths are even more inequitably spread than newborn or child deaths. Of the estimated 536 000 maternal deaths worldwide in 2005, developing countries accounted for 99% (533 000) of these deaths. Slightly more than half of the maternal deaths (270 000) occurred in the sub-Saharan Africa region alone, followed by South Asia (188 000). Thus, sub-Saharan Africa and South Asia accounted for 86% of global maternal deaths giving global MMR of 400 (220-980) per 100,000 live births (8).

By the broad MDG regions, MMR in 2005 was highest in developing regions (at 450 maternal deaths per 100 000 live births), in stark contrast to developed regions at 9 per 100 000 live births. Among the developing regions, sub-Saharan Africa had the highest MMR (at 900(400-1500), followed by South Asia (490) and Eastern Asia at 50. Globally the adult lifetime risk of maternal death is 1 in 92 and highest in Africa (at 1 in 26), 1 in 22 in sub-Saharan, followed by Oceania (1 in 62) and Asia (1 in 120), while the developed regions had the smallest lifetime risk (1 in 7300) (8).

According to World Health Organization (WHO) estimates of maternal mortality in 2005, in Ethiopia there were 22,000 maternal deaths giving MMR of 720 (460-980) per 100,000 live births. Maternal death accounted for 28% of adult female (15-49 years) death and life time risk of 1 in 27 (8). The two round DHS in Ethiopia, found that 263 and 197 maternal deaths giving MMR of 871 (95% CI; 703-1039) and 673 (95% CI; 548-799) per 100 000 live births respectively for the periods 1994-2000 and 1998-2004 respectively. Maternal mortality rate were 1.68 and 1.34 per 1000 women aged 15-49 for the mentioned periods respectively. Maternal deaths accounted for 25 and 21 percent of all deaths to women aged 15-49 in these periods, respectively (5, 6). Maternal mortality estimates using three different methods in Butajira showed MMR of 440-665 per 100,000 live births (16). A study in Illubabor, south west Ethiopia estimated MMR to be 560 per 100,000 live births and life time risk of maternal mortality to be 1 in 20 (17).

2.2 Determinants of Maternal Morbidity and Mortality

More than 70% of maternal deaths are due to causes directly related to pregnancy and child birth. These are hemorrhage (25%), infection/sepsis (15%), complications of unsafe abortion (13%), hypertension (12%), obstructed labor (8%) and others like ectopic pregnancy, embolism, and anesthesia complication. Indirect determinants are defined as preexisting diseases or diseases that develop during pregnancy (not related to direct obstetric determinants) that are aggravated by the physiological effects of pregnancy; the principal indirect determinants in many settings include anemia, malaria, hepatitis and diabetes (3).

The causes of maternal death vary across developing regions and countries. In Africa and Asia, hemorrhage is the leading cause of maternal death, while in Latin America and the Caribbean, hypertensive disorders during pregnancy and childbirth pose the greatest threat. In Africa, obstructed labour and abortion account for 13 and 12 per cent, respectively, particularly in parts of Southern Africa, HIV/AIDS is frequently involved in deaths during pregnancy and childbirth (7).

A range of studies have shown that maternal age is among the determinants of maternal death. An estimated 70,000 adolescent mothers die every year, and complications from pregnancy and childbirth are the leading cause of death for girls aged 15 to 19 years in low-income countries (18). Review of deaths among women ages 10 to 45 in Maputo General Hospitals, Mozambique, showed MMR of 387 and 294 deaths per 100,000 live births among adolescents (under 20 years) and among non-adolescents respectively (19).

Analyses of factors associated with maternal death in Kenyan hospitals showed that higher maternal age, lack of antenatal clinic attendance, high fertility, lower educational attainment and unobserved hospital factors such as resources, equipment, supplies, and hospital administration and management are associated with maternal death (20).

The absence of skilled attendance at birth is another risk factor increasing the probability of death pre- and post-natally (1). The regions with the lowest proportions of skilled health attendants at birth are also have the highest numbers of maternal deaths (7).
Studies had showed impact of provision of obstetric services on maternal mortality. Providing antenatal care in low-income countries can reduce maternal mortality by about 26 percent, and providing essential obstetric care can reduce maternal deaths by another 48 percent (21). In addition, maternal mortality was found to be higher in women who gave birth primarily in district health centers, assisted by traditional birth attendants than women giving birth in health facilities assisted by midwives (22).

There are only a few pocket studies in Ethiopia concerning maternal mortality. Institution based record analysis showed sepsis, abortion complications, eclampsia, hemorrhage,

ruptured uterus and obstructed labor as main causes of maternal mortality. The death was higher for mothers with high total fertility (17, 23).

2.3 Impacts of Maternal Mortality and Disabilities

At current estimates, if no changes are made to avert maternal deaths, the global loss in productivity, over the next ten years, will be almost $22 billion dollars, and the loss for disabilities will total $23 billion dollars. The total losses from poor maternal health and care from 2001 to 2010 will be 2.5 million maternal deaths, 7.5 million child deaths, 49 million maternal disabilities, and $45 billion dollars in lost productivity. If we act now, approximately 500,000 lives of women will be saved, 10 million disabilities averted, and 1.5 million lives of children saved over the next ten years. In addition, a net productivity gain of 10 billion dollars will be realized (24)

2.3 Maternal health service utilization

Poverty and limited access to appropriate care pose major challenges to improving maternal health and reducing maternal mortality. Poor women have limited access to appropriate information and health services. A combination of social, economic and cultural barriers also prevents poor women from easy access to care and health services even when quality health services are geographically within reach (1).

Progress on maternal and reproductive health in recent decades has been somewhat mixed in developing countries. Although great progress has been made in some countries and for selected programs, the availability of comprehensive and high-quality reproductive health services remains an unrealized goal in many settings (14).

Contraceptive prevalence increased slowly from 55 per cent in 1990 to 64 per cent in 2005, but remains very low in sub-Saharan Africa, at 21 per cent. On the other hand, every region has made progress in ensuring that women receive antenatal care at least once during their pregnancy. Even in sub-Saharan Africa, where the least progress has

occurred, more than two thirds of women receive antenatal care at least one time during pregnancy (7).

2.3.2 Safe delivery service utilization

Evidence-based interventions during labor and delivery can make the difference between life and death for women and their infants. It is critical that women with serious complications receive care from a skilled birth attendant in an emergency obstetric care (EmOC) facility with the facilities, drugs, and supplies needed to save women's lives. A Skilled attendance at birth has been described as a partnership of skilled attendants and an enabling environment of equipment, supplies, drugs and transport for referral (3).

Because most maternal deaths occur at labor and delivery or within the first week following birth, EmOC is the most important action that can be taken to reduce maternal mortality. Emergency obstetric care (EOC) is the term used to describe the elements of obstetric care needed for the management of normal and complicated pregnancy, delivery and the postpartum period. Basic EOC includes administration of antibiotics, oxytocics, anti-convulsants, manual removal of the placenta, removal of retained products, and assisted vaginal delivery with forceps or vacuum extractor. Comprehensive EOC includes all basic EOC functions plus Caesarean section and blood transfusion (3, 14).

Providing skilled care at delivery makes clinical sense, is desired by women, and is both cost-effective and feasible in developing countries. Creating effective systems to deal with obstetric emergencies will benefit the entire health care system (22).

Over the last 15 years, all regions have shown improvement in the proportion of assisted births, in the developing world as a whole from 43 per cent in 1990 to about 58 per cent. In sub-Saharan Africa, where nearly half of the world's maternal deaths occur, only 46 per cent of deliveries are assisted by skilled attendants. In Southern Asia, the proportion is even lower. In some countries, the figure is closer to 10-12 per cent. In many of those cases, the woman does not have access to life-saving emergency care (2).

In Ethiopia, out of the expected 2.9 million deliveries a year, 2.6 million are likely to occur at home with assistance of TBAs (28%), relatives (61%), or alone (5%). Only 5% of these women are likely to receive any postnatal care (5, 25).

Reports from MOH in 2007 showed that out of nearly 2.8 million expected deliveries in the year, only 16.4% took place at HFs. Health extension workers (HEW) attended about 7.3% of expected deliveries. The report also showed trends in percentage of deliveries supervised by health professionals and an increment of more than five percent (10 to 16%) was indicated in years 2000 through 2007 (26). However the community based nationwide DHS showed almost no change over the years 2000 through 2005 (5).

From the report of MOH it was also indicated that out of more than 420,000 expected deliveries in SNNPR, 35.5% took professionally assisted delivery care, but there is no report on deliveries attended by HEWs from the region. The high percentage of attended births may be due to the inclusion of deliveries attended by HEWs whose skill to attend deliveries is not yet confirmed (26). Analyses of community and family survey data in densely populated zones of SNNPR showed less than three percent women received delivery care (12).

2.3.2 Determinants of Safe delivery service utilization

2.3.2.1 Socio demographic factors

Several factors affecting maternal care in general and safe delivery service utilization in particular had been identified through many studies. Most of the studies conducted on maternal care utilization in developing countries identified those mothers who are younger than 35 years, attended at least primary education, employed, reside in urban are more likely to use safe delivery service than their counterparts. Moreover, mothers whose husbands attended at least primary and employed had higher odds of giving birth at health facilities compared to those whose husbands are uneducated and unemployed. Further more, living standard and cultural rituals were said to be inhibiting mothers from using safe child birth services (27-33).

Women aged 18 or younger were less likely than women aged 19–23 to use either antenatal care or delivery care, or both. Besides, women over 35 years of age were in a better position to access health care because they were more empowered to voice their needs and had more control over family resources. On the other hand younger women are more likely to give birth at health facilities than those older than 35 years (28, 31, 34)
According to surveys conducted between 1996 and 2005 in 57 developing countries, 81 per cent of urban women deliver with the help of a skilled attendant, versus only 49 percent of their rural counterparts. Similarly, 84 percent of women who have completed secondary or higher education are attended by skilled personnel during childbirth, more than twice the rate of mothers with no formal education (7).

Mothers with some education are more likely to use maternal health care than their counter parts (29-31). The use of institutional facilities and/or trained providers for obstetric complications was positively associated with women's education and their husband's education (35). In addition, a study in India indicated maternal education results in improved child survival because health services that effectively prevent fatal childhood diseases are used to a greater extent by mothers with higher education than by those with little or no education (36).

A study in rural Nigeria showed the likelihood of a health care institution delivery tripled among mothers with post primary education compared to mothers with no schooling. There was a 1.7 times higher likelihood of institutional delivery among mothers in petty trades and a 2.3 times higher probability among farming women than women with no occupation (37).

Consistent with most developing countries, maternal education, age, occupation, residence, economic status were the most common socio demographic determinants of maternal care utilization, particularly safe delivery service utilization in Ethiopia (5, 6, 10, 11, 13).The nation wide EDHS showed delivery in a health facility is more common among younger mothers (age less than 35). The proportion of births delivered in a health facility is only 2 percent among uneducated mothers, compared with 52 percent among

mothers with secondary and higher education (5). Analyses of DHS data for the whole nation indicated that odds of utilizing delivery service is four and a half times and eight times higher for women with primary and at least secondary education, respectively, compared with women with no education. On the other hand, women residing in Addis Ababa and other urban areas are about 40 times and nine times more likely to receive assistance during delivery than rural women respectively (5, 13).

2.3.2.2 Obstetric Determinants

Studies carried out in different parts of the world concerning maternal health care utilization had identified many factors related to pregnancy and child birth. Particularly, for safe delivery service utilization it was indicated that mothers who had lower age at first pregnancy, more than one previous pregnancies, birth order of more than one, received ANC service, birth complications in previous and immediate pregnancies, previous use of professionally assisted delivery (PAD) are commonly found to be significantly associated with safe delivery service utilization (30, 33, 38, 39).

A study in Cambodia indicated that delivery with skilled attendant at the preceding delivery was a significant determinant for subsequent use of skilled attendant. Once a woman has delivered with the aid of an unskilled attendant, she is five to seven times less likely to seek skilled help than a primipara (38).

A study in India showed women with a relatively high level of antenatal care had almost four times higher odds of using trained assistance at delivery than women with a low level of care (40). On the other hand, attendance at antenatal care actually may discourage delivery in a health unit; women who are told that their pregnancy is normal see no reason to deliver at the health unit (32).

In Ethiopia, the nation wide DHS indicated that delivery in a health facility is more common among mothers with first order births, and mothers who have had at least 4 antenatal visits (5). Maternal parity is an independent predictor of utilization of delivery

care services in rural Ethiopia. Women with 2-4 and 5+ children are 60 percent and 50 percent less likely, respectively, to receive delivery care than parity one women (13).

A community based study in Gonder indicated women who did not have any registered antenatal visit were less likely to give birth at health facilities (OR 0.09, 95% CI: 0.06, 0.15) than those received antenatal care. Moreover, mothers who have had past history of intrapartum complication were more likely to seek safe delivery care than those with no such history (OR 1.63, 95% CI: 1.1, 2.24) (11).

2.3.2.3 Maternal knowledge and attitudes on obstetric risks and care

The determinants of maternal health and mortality interact to produce a complex set of circumstances that involve clients, communities, the health system, and the government. These dynamics become urgent when a life-threatening obstetric emergency occurs. Recognizing danger signs and deciding to seek care are influenced by a woman's knowledge of pregnancy-related health risks (14). Several studies showed that women who knew risks of pregnancy, warning signs of pregnancy and labor, life threatening birth complications, existence of delivery service at health facilities, and who had positive attitudes towards health facility delivery care had higher probability of using modern health facilities for child birth (31). A study in India indicated that many women, even if they received antenatal care services at a facility, they preferred to deliver at home in a familiar environment, often with the assistance of someone known to them and feeling that birth is a normal phenomenon that does not need an institutional setting (41)

Progress in preventing and seeking care to reduce maternal deaths in rural Africa depends on women's and communities' knowledge and attitudes to maternal health. It has been shown that women individually have little knowledge of maternal health problems (42). A study in Tanzania indicated women with knowledge of pregnancy risk factors are almost three times more likely to use skilled attendance at birth than those without the knowledge (OR 2.95 (95% CI 1.65-5.25) (31). A study in a semi-urban community of Nigeria found that women and their birth attendants did not seek help promptly because they lacked knowledge of warning signs, believed that supernatural forces caused

complications, faced transportation difficulties, and believed that hospitals provided poor care (43).

Studies conducted in Ethiopia had showed that knowledge of mothers about maternal and child health care was significantly lower for women who wanted to deliver at home compared to those who wanted to deliver at health institutions. The reported reasons for home delivery were absence of health problems, short duration of labor, preferring the attention of relatives and more trust on traditional birth attendants or relatives than health professionals (10, 11).

2.3.2.4 Health service factors and woman's decision making

Factors preventing women in developing countries from seeking life-saving healthcare services they need include: distance from health facilities, cost (direct service fees as well as the fees associated with transportation, drugs and supplies), multiple demands on a woman's time and women's lack of decision-making power within the family (1)

Studies in different developing countries showed that women who live closer to health facilities, who discuss with their partner the place of delivery, and able to pay user fee are more likely to use safe delivery (31, 44). Moreover studies also indicated that lack of transport, poor road condition, poorly staffed or ill equipped institutions with poorly skilled or uncommitted personnel, and the need to secure husband approval were the most common factors that decreased maternal motivation to visit health facilities for care (44-48).

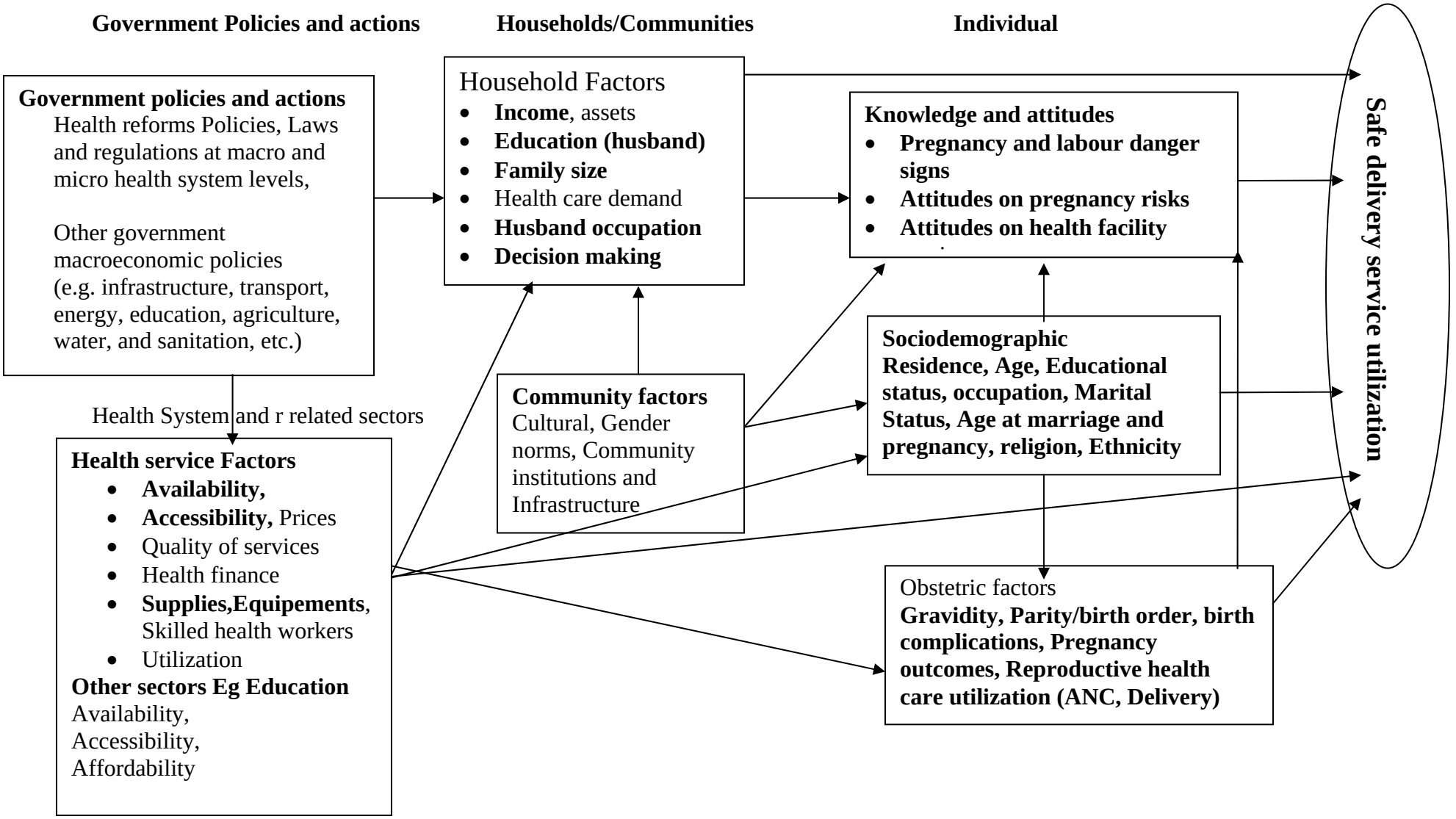
A study in India showed that women would consult family members, usually the head of the household and/or whoever controlled the cash/family finances before seeking care. Approximately half (51.2 percent) of women consulted their husbands, 44.5 percent consulted family members such as their mother-in-law or sister-in-law and 3 percent consulted neighbors and friends. Women who earned money through self-employment or credit used the small amount of money they earned to pay for health care, but most women would only seek care on their own accord if services were free (28).

In Ethiopia consistent with findings of many developing countries, there were many problems identified concerning health service factors. Different assessments and reports showed many hospitals were not providing the emergency obstetric care expected of them due to significant shortage of skilled attendants, supplies and equipments necessary to provide the services (25). In addition, a study conducted in south central Ethiopia indicated that many health institutions had multiple structural deficiencies with inadequate equipment and supplies required for maternity and neonatal care provision (49).

2.4 Conceptual Framework

This study has used a comprehensive conceptual framework adapted from one developed for analyses of reproductive health outcomes (14). The details of the framework displayed in figure 1 below. The arrows in the diagram show interactions between the variables most of the factors are interrelated to each other. As depicted in the diagram safe delivery service utilization is affected by governmental policies and regulations on health and related sectors. Further more, it is affected by community and house hold factors those influence the individual level factors. Due to time and logistic constraints only those in bold were dealt in this study.

Figure 1 Conceptual framework to analyze determinants of safe delivery service utilization



3. Objectives

3.1 General objective

To assess factors associated with safe delivery service utilization among mothers who had given birth during last five years preceding the survey in Sheka Zone, SNNPR

3.2 Specific objectives

1. To identify socio-demographic factors associated with safe delivery service utilization in Sheka Zone, SNNPR
2. To explore obstetric factors associated with safe delivery service utilization in Sheka Zone, SNNPR
3. To search out maternal knowledge and attitude on obstetric risks affecting safe delivery service utilization in Sheka Zone, SNNPR
4. To identify health system factors influencing safe delivery service utilization in Sheka zone, SNNPR

4. Methodology

4.1 Study design and period

The study employed mainly quantitative supplemented by qualitative designs.

Quantitative; Community based cross sectional house hold survey among women who gave birth during the five years preceding the survey.

Qualitative; key informants interviews with health experts, observation of facilities and their equipments and review of relevant documents was conducted.

Study period; From February to March 2008.

4.2 Study Area

The study was conducted in Sheka zone, one of the 13 zones in SNNPR. The capital of the Zone, Masha, is located 951Kms to North West of Awassa, the capital of SNNPR and 676 kms to South west of Addis Ababa. Administratively, the Zone is structured into three weredas and two town administrations those comprised of 10 urban and 57 rural kebeles. Based on projection from the 1994 population and Housing Census the total population in 2007/08 is estimated to be 201,368 (98,670 (49.1%) males and 102, 698 (51%) females. Of the population 15.5% and 84.5% peoples reside in urban and rural areas respectively (50). Child bearing age women (CBAW) make up about 23.7% of the population and approximately 3.73% becomes pregnant annually. The dominant ethnic group is Shekacho and Orthodox Christianity is the religion followed by the majority of the residents. Concerning facilities, there are automatic digital telephone and frequently interrupted electric services in the two town administrations of the zone. There is one all weather road connecting the Weredas to the zonal capital, neighboring zones and regions. The majority of the kebeles do not have access to vehicle transportation (51).

There are 3 health centers (HCs), 4 growing health centers (GHCs), 22 health posts (HPs) and 15 private for profit clinics in the zone. More than 75% of the population lives within 10kms of the institutions. There are two district hospitals in neighboring zone and

region those are 50 and 76kms from two of the HCs. A total of 158 health professionals, 1 Health officer (HO), 3 BSc nurses, 2 midwife nurses, 75 other type nurses, 116 Health Extension Workers (HEWs) and others serve in the public facilities. The coverage of ANC and PAD for 2006/07 were 68 and 18% respectively (52).

4.2 Source and study Population

Source population; All CBAW who are permanent residents of the study area.

Study population; All CBAW who had given birth in the five years before the survey.

Study subjects; Sample of CBAW who had given birth at least once in the five years prior to the survey irrespective of outcome, gestation or place of delivery.

Study unit; Individual women

Inclusion criteria;

- CBAW who resided in the study area for at least five years
- CBAW who have given birth at least once in the five years preceding the Survey
- CBAW who are mentally and physically capable of being interviewed

Exclusion criteria; those that did not fulfill the inclusion criteria.

4.4 Sample Size determination

Sampling technique- Probability, multistage sampling technique was used.

Sample size determination; The following assumptions and formula were considered in calculating the size of the sample to be taken. Different nationwide and pocket studies have identified maternal literacy, birth order, ANC use and previous birth complication as determinants of safe delivery service utilization (5, 11, 13, 53) .Therefore, the sample size was calculated for each factors and the optimum size was taken considering logistics and resource constraints. The size was calculated using EPI table of EPI 6 computer software which uses the following formula.

$$n_1 = \frac{[Z\alpha/2\sqrt{(1+1/r)\,P\,(1-P)} + Z\beta\sqrt{P_1\,(1-P_1) + P_2\,\frac{(1-P_2)}{r}}]^2}{(P_1-P_2)^2}$$

P1= Proportion of women who had completed at least secondary school among those who had given birth at health facilities=26.2 % (53)

P2= Proportion of women who had completed at least secondary school among those who had given birth at home=7.8 % (53)

P=Pooled Population proportion = $\frac{P1 + rP2}{1+ r} = 0.12$

$Z\alpha/_2$ = is the corresponding Z value to 95% significance level = 1.96

Zβ=corresponding Z value for power of 90%=1.28

r =Ratio of women delivering at home to those delivering at HF (n_2/n_1) since HF delivery service utilization is as low as 4% in the region 3:1 ratio was taken.

n_1= sample size of women who gave birth at health institution

n_2 = sample size of women who gave birth at home

From the calculation a sample of 66 women who delivered at HF and 198 delivered at home was required. Finally, considering a design effect of two and non response of 5% total of 554 women (139 women delivered at HF and 415 delivered at home) were needed.

4.5 Sampling procedure

The zone was stratified by Weredas those previously encompass the current town administrations. Two of the weredas (Masha and Anderacha) had previously been one wereda (Masha) and had similar population composition, health infrastructure, facilities and practices. On the other hand, the other wereda, Yeki had been the administrative unit for both the rural and currently town administration, Tepi. Consequently, the former administrative units Masha and Yeki were used as units of strata for sampling. Since area of residence is the most common determinants of delivery service utilization (5, 13), the strata were further stratified to urban and rural. Finally, 10 kebeles (8 rural and 2 urban) were selected randomly from the respective strata proportional to their size. Expecting every house holds (HHs) to host at least one woman who had given birth in the last five years, HHs were taken as a final sampling units. Estimate of the number of HHs per

kebele was taken from finance and economy department (50). Finally, after selecting random starting point, HHs were selected using systematic sampling technique from this random starting point and all eligible in the HH were interviewed. For HHS with no eligible the immediate next HH was sought. The schematic presentation of the sampling procedure and allocation to Weredas are attached at annex 1 and 2. For qualitative design, non probability purposive sampling technique was employed. Four key informants were purposefully selected from Zonal and wereda health sectors. Two HCs were purposefully selected for record review and observation.

4.6 Variables

A. Independent Variables;

- Socio demographic -Maternal Age, Marital status, age at marriage, Ethnicity, religion, income, Family size, Residence, Educational status (women/husband), Occupation (women/husband)
- Obstetrics characteristics - age at first pregnancy, Gravidity, Parity, birth order, ANC use, child birth complications
- Knowledge and attitude on - obstetric risks, HF delivery service, danger signs of pregnancy and labor, benefits of safe delivery, risks of home delivery
- Health facility factors- distance, availability, service fee, supplies, facilities and equipments, decision making

B. Dependent Variable; Safe delivery service utilization

4.7 Data collection

4.7.1 Data collection Methods

A. Face to face interview with structured questionnaire of CBAW

B. In-depth interview of key informants

C. observation of facilities, equipments and supplies at health institutions

D. Review of relevant documents

4.7.2 Data collection tools

A .**Structured questionnaire** –The questionnaire was adapted from DHS and related thesis works (5, 11, 53, 54). The English version of the questionnaire was translated in to

Amharic for better understanding by both data collectors and respondents. Consistency was checked by translating the Amharic version back to English by another individual fluent in both languages.

B**. Semi-structured interview guide question**- Open ended interview questions were developed for the key informant to elicit information on health system factors influencing safe delivery service utilization. The questions included the current situation of safe delivery service, factors affecting provision of the service and ways to promote utilization in the catchments.

C. **Check list** – Developed to observe facilities, supplies and equipments in health institutions. The check list was designed based on findings of different studies and minimum required standards of different levels of health institutions (49, 55). Equipments, supplies and facilities were checked for their availability and functionality.

4.7.3 Data collection Procedure

4.7.3.1 Selection and Training of data collectors and supervisors

Ten HEWs who were fluent speakers of the local languages and two nurse supervisors from the respective weredas were recruited trained for two days. The training course was given by the Principal investigator (PI) prior to data collection. The sessions of the training included purpose and objectives of the survey, meanings of each question and techniques of interview. In addition the role and responsibilities of data collectors and supervisors were covered. During the sessions lecture, discussion and role play were used.

4.7.3.2 Pre testing of the questionnaire

The questionnaire was pre tested on 30 eligible women in neighboring kebeles (one rural and one urban). Findings were discussed among data collectors and supervisors, so that, the tool was modified before actual data collection. The final interview was conducted at participant's home at convenient time and place arranged by the data collectors and the women using the modified questionnaire.

4.8 Data Processing

Data were first checked manually for completeness and then coded and entered in to Epinfo version 3.3, 2004 computer software by the PI. The entered data was transferred to SPSS version 13 computer program by using Stat transfer software for further processing. The data were then cleaned by visualizing, calculating frequencies and sorting. Corrections were made according to the original data. Finally, univariate analyses were done using frequency and percent. 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. During the analyses P-value and /or 95% confidence interval (CI) for OR (odds ratio) were used in judging the significance of the associations. So that P-value less than 0.05 or CI not containing one were taken as significant association. Results were presented in text, tables, charts and graphs.

4.9 Data quality control

Data quality was ensured during collection, coding, entry and analysis. During data collection, adequate training and follow up were provided to data collectors and supervisors. Supervision of data collectors included observation of how are they administering questions and random revisit on 30 HHs by supervisors and the PI. Codes were given to the questionnaires and HH during the data collection so that any identified errors were traced back using the codes. The filled questionnaires were checked for completeness by data collectors, supervisors and PI on a daily basis. Consequently, any problems encountered were discussed among the survey team and solved immediately. Finally, data were thoroughly cleaned before analyses.

4.10 Result Dissemination plan

The thesis will be defended at School of Public Health, Addis Ababa University and a short report communicated to the Zonal Health department. Presentations at professional, local, national and international meetings and publication in peer reviewed national and international journals will be attempted.

4.11 Ethical consideration

The survey was conducted after approval by the IRB (Institutional Review board) of medical faculty, AAU. Official letters were written from SPH, AAU to respective officials. Informed verbal consent was obtained from respondents after giving them information about the study. Details of the information attached at the annex 3.Uniform set of health information regarding risks of home delivery, possible complications of pregnancy and how to respond to them were provided to respondents during data collection. In addition all the responses were kept confidential and anonymous.

4.12 Operational Definitions

1. **CBAW**: Any women aged 15 to 49 years old irrespective her fertility status.
2. **Know danger signs of pregnancy**- at least three of the accepted danger signs mentioned
3. **Know danger signs of labor**- at least three of the accepted danger signs mentioned.
4. **Home delivery**-delivery took place at locations other than health facility without assistance of a trained professional.
5. **Kebele**: Lowest administrative unit in Ethiopia.

6. **Safe Delivery**: delivery where the attendant monitors progress of labor to avoid and manage complications those endanger the wellbeing of both the mother and newborn.
7. **Safe delivery service utilization**: Giving birth at a setup where safe delivery service is being provided, most of the time at health facilities.
8. **Skilled 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.
9. **Wereda**: Administrative unit equivalent to district comprising number of kebeles.
10. **Zone:** Administrative level consisting of a number of weredas.

5. RESULTS

I. Quantitative

A total of 554 women who had given birth in the preceding five years before the survey were interviewed giving response rate of 100 percent. The respondent were informed about the right to participate or not and none of them refused to respond.

5.1 Socio-demographic characteristics of the respondents

Four hundred sixty (83%) of the respondents reside in rural and 76.9% were aged 20-34yrs with mean +(SD) of 27+(6) yrs. One hundred sixty eight (30.3%), 143 (25.8%) and 106 (19.1%) of the respondents belong to Shekacho, Amhara and Kaficho ethnic groups respectively. Five hundred fourteen (92.8%) were currently married with mean + (SD) and median age at first marriage 17+(2.4) and 18yrs respectively. Among the respondents 39.2% were protestant Christians and 37.5% were orthodox Christians.

Almost half, 48.5% of the respondents have never attended any formal education and only 6.2% were engaged in paying jobs and 155 (28%) had their own income. Regarding their husbands 35% of them completed at least secondary school and 11.5% were employed in either governmental or private firms.

With regard to the characteristics of house holds (HHs) of the respondents 42.5% do have more than five regular dwellers per HH with mean of 5.3dewler per HH. Only 40.3% of the respondents were able to estimate their HH monthly income and 50.2% of the HHs earned below the median 130ETB.The monthly HH income ranges from 20 to 4400ETB. The details of selected socio demographic characteristics are summarized in Table1.

Table 1: Socio demographic characteristics of the respondents, Sheka Zone, SNNPR Ethiopia, March 2008. (n=554)

Variables	Frequency	Percent
Residence		
Rural	460	83.0
Urban	94	17.0
Age at interview(yrs)		
Mean ± SD	27±6	
15-19	42	7.6
20-34	426	76.9
35-49	86	15.5
Religion		
Orthodox	208	37.5
Muslim	97	17.5
Protestant	217	39.2
Traditional	32	5.8
Occupation		
Farmer	316	57.0
House wife	204	36.8
Paying jobs**	34	6.2
Respondent educational status		
Secondary and higher	88	15.9
Primary	197	35.6
No formal education	269	48.5
Husband educational status(n=514)		
Secondary and higher	280	35.0
Primary	187	36.4
No formal education	147	28.6
Husband occupation(n=514)		
Farmer	387	75.3
Gov't or private employee	59	11.5
Merchant	47	9.1
Other***	21	4.1
House hold size(n=554)		
1-5	319	57.5
>=6	235	42.5
Family income/month (n=223)*		
<=130ETB	112	50.2
>130ETB	111	49.8

** Gov't or private employed, House maid, Daily laborer student, jobless

*** Carpenter, Daily laborer,

* Income cutoffs based on median distribution of the responses

5.2 Obstetric characteristics of the respondents

The majority, 64.2% of the women were below 20yrs at their first pregnancy with mean ± (SD) 18.9 (2.5) yrs. At their last birth 412 (74.4%) of the mothers were 20-34yrs old and 63 (11.4%) were older than 35yrs with mean (SD) being 26.2 (5.9) yrs.

Regarding their pregnancy profile 21.7% of the respondents had been pregnant only once and 152 (27.1%) more than five times in their life. The majority of the mothers 502 (90.6%) had never given birth at a health facility. Five hundred fourty four (98.2%) of the respondents had had at least one live birth and 140 (25.3%) had encountered at least one bad obstetric out come. Fifty three (12.5%) mothers faced at least one complication of labor during next to last birth of whom 33 (62.3%) had prolonged labor.

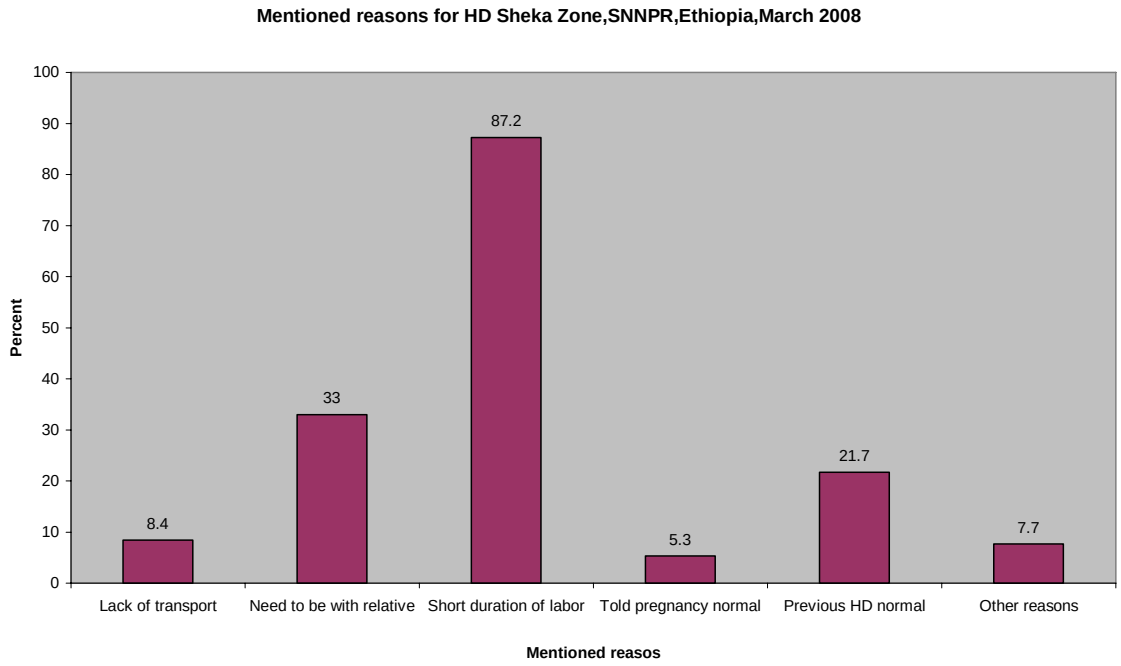
One hundred eighty (32.5%) mothers did not plan their last pregnancy. The majority, 80.3% of the respondents received ANC at least once and 328 (73.7%) had four or more visits. The last birth was of order one and more than four in 23.5% and 26.9% mothers respectively. During their last birth 139 (25.1%) mothers gave birth at health facilities and 136 (24.5%) were attended by nurse and above professionals. One hundred two (18.4%) mothers encountered at least one child birth complication during their last delivery, for which 89 (87.3%) were taken to a health facility and 31(34.8%) were referred further. Only 5 (5.6%) mothers were taken by vehicles to the first health facilities and the rest majority 94.4% went on foot, horse back and local stretcher. With regard to the mode of deliveries 536 (96.6%) had spontaneous vaginal delivery (SVD) and 11 (2.0%) by cesarean section (C/S). Among the complications, prolonged labor occurred in73 (71.6%) of the mothers.

Different reasons were mentioned for place of delivery for the last birth. The most commonly raised reason for home delivery was short duration of labor 362 (87.2%) followed by need to be with relative 137 (33%). Reasons for using a health facility includes being told to deliver at HF by health workers during ANC visit, 52.5% followed by need for better care. Details of the variables are summarized in table 2 and fig 3 and 4.

Table.2 Obstetrics characteristics of the respondents, Sheka Zone, SNNPR Ethiopia, March 2008(n=554)

Variables	Frequency	Percent
Age at 1st pregnancy		
Mean ± SD	18.9 ± 2.5	64.2
15-19	356	32.8
20-24	182	2.9
25-34	16	
Gravida		
1	120	21.7
2-4	282	50.9
>=5	152	27.4
Birth order		
1	130	23.5
2-4	275	49.6
>4	149	26.9
Previous bad outcome*		
Yes	140	25.3
No	414	74.7
HF delivery before		
Yes	52	9.4
No	502	90.6
Last pregnancy planned		
Yes	374	67.5
No	180	32.5
Received ANC last pregnancy		
Yes	445	80.3
No	109	19.7
ANC frequency		
>=4	328	73.7
<4	117	26.3
Place of delivery(n=554)		
Home	415	74.9
Health facility	139	25.1
Immediate complication**		
Yes	102	18.4
No	452	81.6
Preceding complication***		
Yes	53	9.6
No	501	90.4

* At least one abortion/still birth/infant death ** Encountered any health problem during last birth *** Encountered any health problem during immediate next to last birth



Other =presence of well trained Traditional Birth attendants (TBAs), Unwelcoming health professional approach, HF too far, HD =home delivery

Fig 2 Reasons mentioned for home delivery Sheka Zone, SNNPR, Ethiopia, March 2008

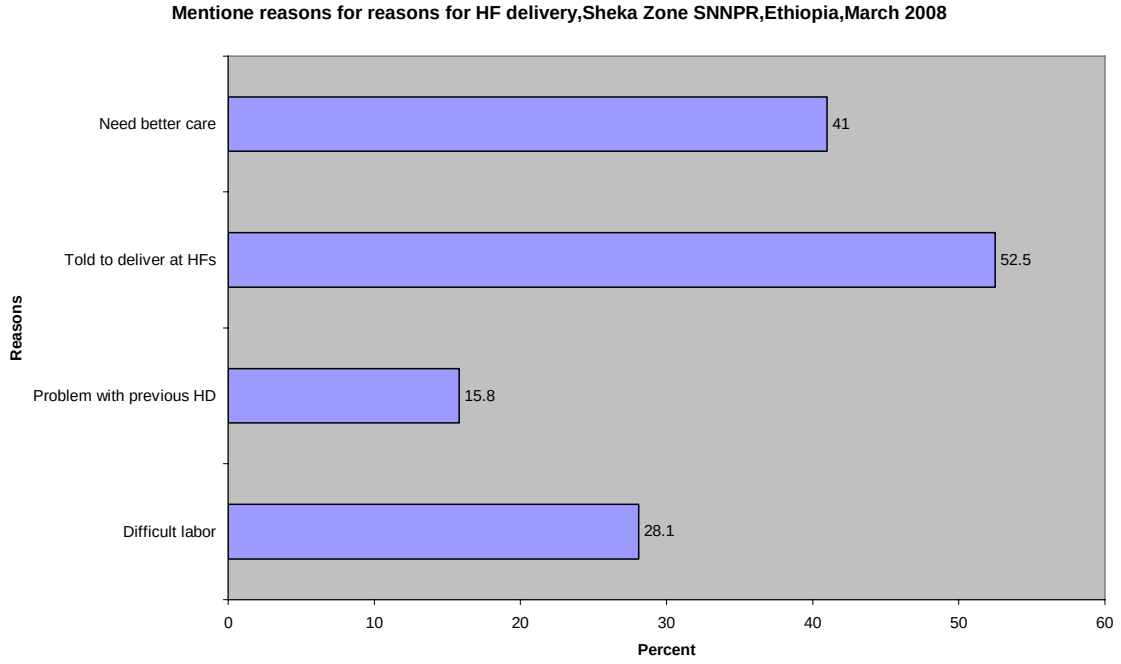
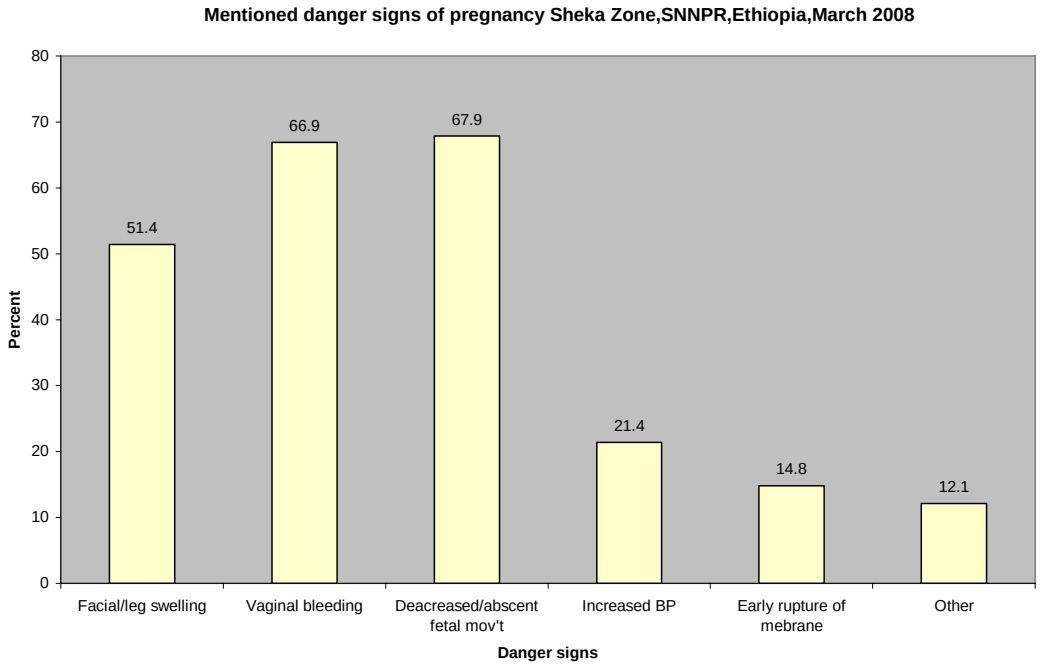


Fig 3 Reasons for HF delivery, Sheka Zone, SNNPR, Ethiopia, March 2008

5.3 Knowledge and Attitude about pregnancy, labor and delivery service

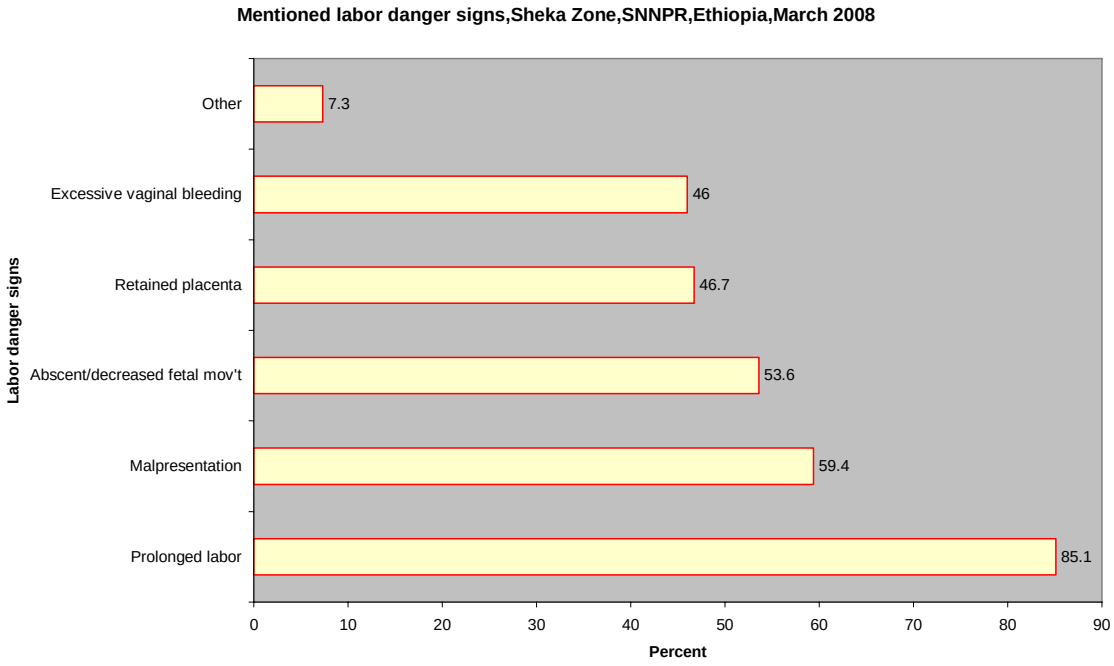
More than half of mothers, 54.2% knew at least one of the pregnancy risks. Of these 197 (65.7%), 194 (64.7%) and 98 (32.7%) said pregnancy related diseases, maternal death and fetal death respectively. Two hundred ninety, 52.3% of the respondents named correctly at least one of the accepted danger signs during pregnancy. As shown in the following chart, decreased/absent fetal movement 197 (67.9%) followed by vaginal bleeding 194 (66.9%) were the common mentioned signs. One hundred nine (19.7%) had mentioned at least three danger signs and labeled as good knowledge. Seventy nine (27.2%) mothers encountered at least one of the danger signs during their last pregnancy and 66(83.5%) consulted trained health professionals while 9(11.4%) did not take any action for the signs.



Other=Sever headache, blurring of vision, Abdominal pain

Fig 4 Mentioned danger signs of pregnancy Sheka Zone, SNNPR, Ethiopia, March 2008

Two hundred sixty one (47.1%) knew at least one key danger sign during labor of whom 22 (85.1%) said prolonged labor followed by mal-presentation, 155 (59.4%). Relatively 89(16.1%) had mentioned at least three danger signs and labeled as good knowledgeable. Besides, 124 (22.4.%) mothers were aware of the risks of delivering at home in the absence of trained health professionals. On the other hand, 315 (56.9%) were aware of the benefits of delivering at health facilities. Regarding attitudes of respondents 411 (74.2%) and 413 (74.5%) of the respondents had favorable attitudes towards pregnancy risks and health facility delivery care respectively.



Other=Loss of consciousness, Early rupture of membrane, Continuous abdominal pain

Fig 5 Mentioned danger signs of labor Sheka Zone, SNNPR, Ethiopia, March 2008

Table 3 Knowledge and attitudes of respondents towards pregnancy, labor and delivery service, Sheka Zone, SNNPR, Ethiopia, March 2008

Variables	Frequency	Percent
Know HF delivery benefits		
Yes	315	56.9
No	239	43.1
Know risks of home delivery		
Yes	124	22.4
No	430	77.6
Know risks of pregnancy		
Yes	300	54.2
No	254	45.8
Know pregnancy danger signs		
Yes	109	19.7
No	445	80.3
Know labor danger signs		
Yes	89	16.1
No	465	83.9
Attitude to pregnancy risk		
Favorable	411	74.2
Unfavorable	143	25.8
Attitude to HF delivery service		
Favorable	413	74.5
Unfavorable	141	25.5

5.4 Health service utilization and Women decision making

The majority of the respondents (89%) lived within one hour walking distance of at least health post (HP) from their home and 350 (63.2%) mothers said the nearest facilities provided delivery care. Only 67 (66.3%) could remember the amount they paid for the most recent health facility delivery and of them 33 (49.3%) paid above median 30ETB and 18 (26.9%) claimed it as expensive. Concerning decision making 429 (77.4%) and 388 (70%) women decided by themselves about where to deliver and who would attend their delivery respectively.

Table 4 -Health service utilization and women decision making, Sheka Zone, SNNPR, Ethiopia, March 2008

Variables	Frequency	Percent
Walking hrs to nearest HF		
<1	493	89.0
>=1	61	11.0
HF providing delivery care		
Yes	350	63.2
No	204	36.8
Ever used any RH service		
Yes	455	82.1
No	99	17.9
Paid for delivery service(n= 202)		
Yes	159	78.7
No	43	21.3
Opinion on the payment(n=67)		
Unaffordable	18	26.9
Affordable	49	73.1
Decision maker for place of delivery		
Self	429	77.4
Other than self	125	22.6
Decision maker about who would attend labor		
Self	388	70.0
Other than self	166	30.0
Decision maker for any expense		
Self	115	20.8
Other than self	439	79.2

5.5 Bivariate and Multivariate analysis

5.5.1 Bivariate Analysis

Crude analysis of socio-demographic variables on binary logistic regression showed that maternal age, occupation, education, family size, husband occupation and education were all significantly associated with health facility delivery at $p<0.05$. On the other hand, residence, house hold income, marital status, ethnic group and religion of the respondents did not show statistical association with HF delivery utilization.

Among the obstetric variables, women gravidity, birth order, ANC use, ANC frequency, ever delivered at HFs before last pregnancy, presence of immediate and preceding birth complications were significantly associated with HF delivery at $p<0.05$.On the other hand, age at 1st pregnancy, planning pregnancy and previous bad pregnancy out comes were not significantly associated with safe delivery service utilization. Moreover, maternal knowledge on benefits of giving birth at HF, risks of home delivery (HD), danger signs during pregnancy and labor and favorable attitude towards health facility delivery were significantly associated with delivery at a HF $p<0.05$. Women who decided by themselves on where to deliver and able to pay for the fees were more likely to give birth at health facilities. However, availability and distance of HF and decision on any expenses were not associated with safe delivery service utilization.

Mothers aged 15-19yrs were more than two and half times as likely to give birth at HFs compared to those aged above 35yrs OR 2.61, 95%CI=1.08-6.31.Women age was also highly associated with their parity x^2 =196.8, $p <0.001$. House wife mothers were more than 50% less likely to use HF delivery compared to mothers with an employment COR=0.55, 95% CI=0.31-0.98. Occupation of the mothers was also associated with their educational status x^2=33.8, $p<0.001$. Mothers with family size of less than three were more than two times as likely to give birth at HFs compared to those living with more than five members COR=2.41, 95% CI=1.95-4.30.Family size had also strong association with parity of the mother with x^2= 319.7,$p<0.001$.

Mothers whose husbands had completed at least secondary schooling were 67% more likely to deliver at HFs than those whose husbands had never attended any formal schooling COR=1.67, 95% CI=1.01-2.79. In addition, women whose husbands were in paid employment or merchant were more than one half or two times more likely to utilize HF delivery COR=1.78, 95% CI=1.05-3.01 and 2.73, 95% CI=1.46-5.11 respectively compared to farmers.

With regard to maternal knowledge on obstetric risks and services, mothers who knew at least one risks of HD were more than twice as likely to deliver at a HF than mothers who did not know (COR=2.38 ,95% CI=1.48-3.81). On the other hand, mothers who knew at least one of the accepted danger signs during pregnancy or labor were more than two times more likely to give birth at a HF than those who did not know COR=2,13, 95 % CI=1.36-3.34 and 2.01,95% CI=1.23-3.23 respectively. Moreover, mothers with favorable attitudes towards HF delivery service were 88% more likely to give birth at HF than those with unfavorable attitudes (COR=1.88, 95% CI 1.13-3.12). Both the knowledge and attitudes of the women were also associated with their educational status x^2=6.0-7.8, p=0.2-0.04.

Mothers who said fees were affordable were more than twice as likely to give birth at a HF as those that said fees were unaffordable (COR=2.35, 95%CI=1.14-4.84). In addition, women who decided by themselves on place of delivery were 57% more likely to deliver at a HF than those who did not decide by themselves (COR=1.57, 95% CI=1.01-2.43). The decisions on house hold expenditures were associated with the maternal educational status x^2=8.4, p=0.02

5.5.2 Multivariate Analyses

A multivariate analysis involving all associated variables was performed to identify independent predictors of safe delivery service utilization. Consequently, maternal education, birth order, prenatal care use, immediate obstetric complication and delivering at a HF in prior births independently showed significant association. The details are summarized on the table 5.

More educated mothers were more likely to deliver at HFs. Women who completed at least secondary school were more than three times as likely to give birth at HF than those uneducated (AOR=3.26, 95% CI=1.51-7.06). Women with birth order above four were 21 % less likely to give birth at HFs than those with first order births AOR=0.21, 95%CI=0.10-0.43. On the other hand, mothers who had encountered birth complications tended to give birth at HFs. Those who had encountered problems in their immediate birth were more than 33 times as likely to give birth at HFs than those who had not AOR=33.78, 95% CI=16.44.-69.39).

Women who received prenatal care at least once were more than two and half times as likely to deliver at HFs than mothers who had not received AOR=2.55, 95% CI=1.05 6.21. Furthermore, mothers who gave birth at HFs in at least one prior birth were more than 29 times more likely to deliver their immediate birth at a HF compared to those who had never delivered at HFs (AOR= 29.25, 95% CI= 11.7.-73.13).

Table 5 Determinants of safe delivery service utilization, Sheka Zone, SNNPR, March 2008

Variables	Place of delivery		Crude OR	Adjusted OR
	Home(n=415)	HF(n=139)	95% CI	95% CI**
Current age				
15-19yrs	29	13	2.61 (1.08-6.31)*	0.73 (0.16-3.26)
20-34yrs	313	113	2.02 (1.08-3.79) *	1.38 (0.51-3.78)
35-49yrs*	73	13	1.00	
Educational status				
>=Secondary	48	40	3.32 (1.98-5.55) *	3.26 (1.51-7.06) *
Primary	152	45	1.18 (0.75-1.84)	1.19 (0.61-2.33)
Illiterate	215	54	1.00	
birth order				
>4	118	31	0.38 (0.23-0.65) *	0.21 (0.10-0.43) *
2-4	220	55	0.36 (0.23-0.57) *	0.17 (0.06-0.44) *
1	77	53	1.00	
Received ANC				
Yes	126	319	2.92 (1.58-5.39) *	2.55 (1.05-6.21) *
No	96	13	1.00	
Immediate obstetric complication				
Yes	24	78	20.83 (12.25-35.43)*	33.78 (16.44-69.39) *
No	391	61	1.00	
Ever had HF delivery before				
Yes	12	40	13.6 (6.86-26.82) *	29.25 (11.7-73.13) *
No	403	99	1.00	
Know pregnancy danger signs				
Yes	68	41	2.13 (1.36-3.34) *	1.44 (0.66-3.14)
No	347	98	1.00	
Attitude to delivery service				
Favorable	298	115	1.88 (1.15-3.07) *	1.40 (0.7-2.81)
Unfavorable	117	24	1.00	
Decision maker for place of delivery				
Self	330	99	1.57 (1.01-2.43) *	0.67 (0.36-1.25)
Other than self	85	40	1.00	
Know labor danger signs				
Yes	56	33	2.01 (1.23-3.23) *	0.78 (0.33-1.84)
No	359	106	1.00	

* Statistically associated at $p<0.05$ ** Adjusted for socio-demographic, obstetric, knowledge and attitude variables those showed significant association during bivariate analyses

5.6 Record review findings

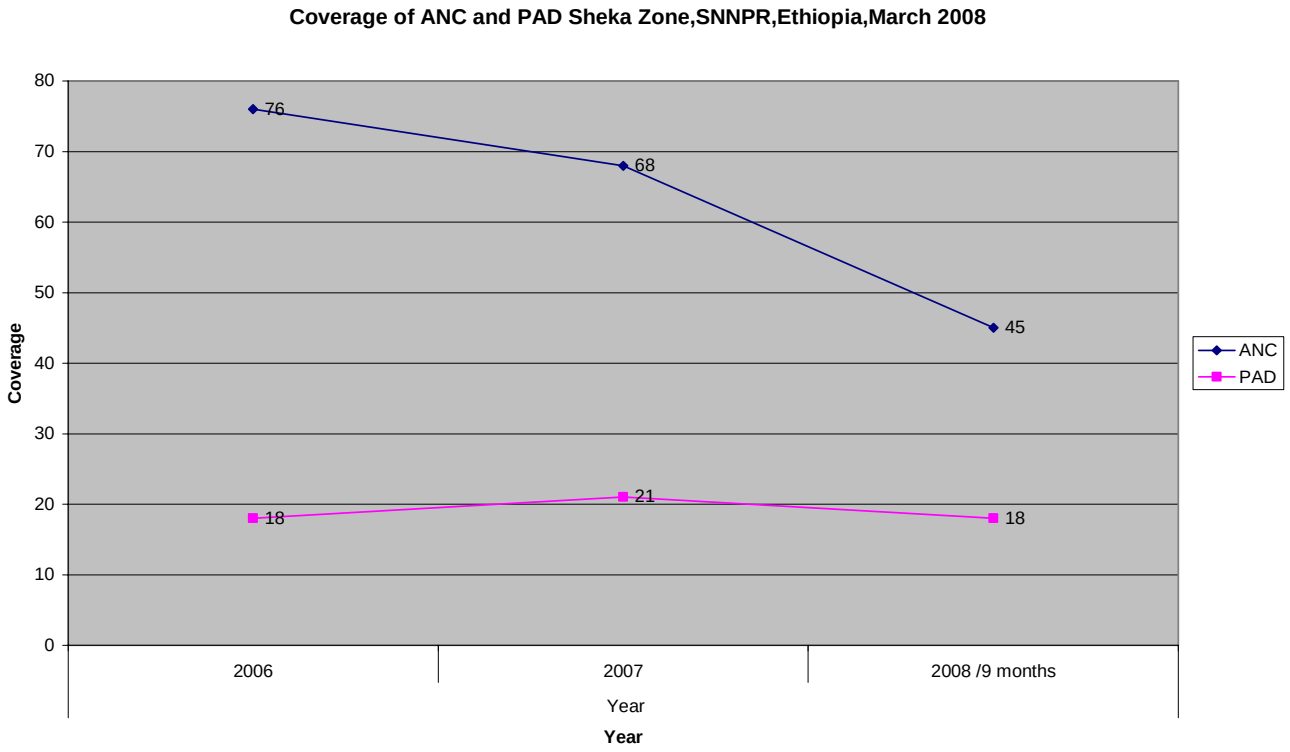
Records of ANC, delivery log books and labor referral registration books of two purposely selected HCs and zonal health department report files were reviewed. The review of ANC and delivery records covered a one year period registration (Jan 2007 to Dec 2007) whereas that of zonal reports covered a two year and nine months (June2005 to April 2008). Records of 1287 ANC clients and 686 mothers in labor were reviewed from both HCs. None of the records at both HCs are complete. Since the two HCs are the only HCs in their respective weredas the target for the weredas were taken for comparison. From the records it was observed that 19 to 23% and 10 to 12% mothers eligible in the weredas received ANC and professionally assisted delivery (PAD) respectively. Great majority of labors were attended at the HCs with referral rate ranging from 17.6 to 19.7% of the admitted mothers. In both of the HCs there were no registration book for received referrals that might depict poor referral linkage or registration. The findings are summarized in table 6 below.

Table 6 Findings of record review of Masha and Teppi HCs, Sheka Zone, SNNPR, Ethiopia, March 2008

Service	Teppi Number	Percent	Masha Number	Percent	Total
Expected pregnancies	4793		1735		
Expected pregnancies town	742	15.0*	429	25.0*	
ANC 1st visit	892	19.0*	395	23.0*	1287
Admitted labor at HC	476	10.0*	210	12.0*	686
Attended	382	80.3**	178	84.8**	560
SVD alive	370	96.9	173	97.2	543
Still birth	12	3.1	5	2.9	17
Episiotomies	59	15.4			59
Delivery attendants					
HO			2	1.2	2
Midwife nurse	139	49.3	21	11.8	160
Other nurse	195	51.0	130	73.0	325
Other professionals	48	12.6	25	14.0	73
Referrals made	94	19.7	37	17.6	133
Reasons for referral					
Prolonged labor	48	51.1	20	54.1	68
Vaginal bleeding	17	18.1	2	5.4	19
Retained placenta	6	6.4	3	8.1	9
Other	23	24.5	7	18.9	30
Not stated			8	21.6	8

*Percentages calculated from expected pregnancies in the wereda
** Percentages calculated from admitted labors.
SVD =spontaneous vaginal delivery HO=health officer

The following graph shows utilization patterns of ANC and PAD in the Zone. As shown in the graph huge gap is observed between the utilization of the services. The trend in ANC coverage seems to be decreasing which could be due to misreporting or other reasons that need further exploration.



PAD= professionally assisted delivery

Fig 6 ANC and delivery service utilization coverage in Sheka Zone, SNNPR, Ethiopia,July 2006 to March 2008

II. Qualitative Findings

A. Key informant in-depth interviews

A total of four experts (one HO and 3 nurses) of family health experts at zonal, wereda and town administration were interviewed. The contents of the interview included patterns of maternal health service utilization, status of delivery care and factors affecting provision of safe delivery care.

All of the experts mentioned ANC, delivery, EPI, PMTCT, family planning (FP), postnatal care and other related services are being provided for mothers at all public health facilities except the newly constructed HPs. Almost all maternal health services are being given free of charge except during shortage of contraceptives and supplies for delivery care. Regarding the status of utilization except delivery and post natal care other services are highly utilized. The informants said;

"ANC and FP coverage are highly increasing because they can be given anywhere at any time. So that, through outreach services the mothers are getting the services. On the other hand most deliveries took place unexpectedly at mid night and it is difficult to provide delivery service at any time and place; hence there are many ANC attendees but do not come for delivery. Because, women can come for ANC and FP by themselves, but they could not come when in labor; they need others help. Therefore the coverage for delivery is very much lower than others."

The experts mentioned various factors affecting provision of skilled attendance at birth. Among the factors are inadequate skilled professionals, lack of in service training, shortage of equipments and supplies, low maternal knowledge on benefits of HF delivery and risks of HD, unwelcoming professional behaviors and lack of basic facilities at the existing institutions. The informants did not take or provided any training on EmOC and they are unaware of the terms. Moreover, the zone has no hospital or ambulance in any of the HCs to transport to nearby hospitals in case of obstetric emergencies. Besides,

there is poor linkage between the HPs and HCs with regard to early detection and referral of risky mothers. The experts said;

"The so called equipped facilities are located in towns but vast majority of mothers reside in rural where there is no transport access. On the other hand the facilities are not attractive for mothers; they are unclean with bad odor, lack water and electric light. In addition, the professionals are negligent and do not follow mothers to the standard. Therefore, mothers come to our facilities after they failed any alternatives at their home. Sometimes they even prefer dying at their home to delivering at HFs."

Finally, the informants recommended that all health facilities especially those closer to the rural majorities have to be equipped with basic equipments and facilities, skilled and committed professionals and kept clean. Furthermore, extensive awareness creation on risks of pregnancy, danger signs of pregnancy and labor has to be conducted involving all family members, community leaders and civic associations. The health professionals have to get in service training to upgrade their skills in detecting and managing obstetric emergencies.

B. Observation Findings

Observation of facilities was conducted at two purposefully selected health centers. It was conducted by using checklists prepared prior to the observation. The observation focused on infrastructure, basic facilities, equipments, supplies and some essential drugs.

It was observed that both facilities do not have adequate rooms for delivery care. They have one crowded room serving for delivery, post abortal care and other obstetric and gynecological examinations. Similarly, a single crowded room is being used for both waiting and post natal recovery. Consistent with the key informants' interview finding, the rooms are cracked, dirty and with bad odor particularly in one of the HC. The rooms do not have water supply and 24hr electric light. Moreover; both of them do have offensive smelling latrines serving for all clients visiting the health centers. There is

telephone service placed at office of the head which is open only during regular working hours and days. Consequently, the telephone is not being used for emergency calls at any time.

Both facilities were not adequately equipped with basic obstetrics equipments. Among basic equipments for delivery, suture needles and materials, neonatal mucus extractor, neonatal resuscitation bag were absent in at least one of the facilities. On the other hand, the existing equipments were inadequate and poorly stored. Vacuum extractor and sterilizer were not found in one of the health center. So that, sets are being reused after boiling on ordinary stove in the health center with no sterilizer.

Only some of the essential supplies and drugs were available in both HCs. There were few stocks of cotton, gauze bandage, gloves and disinfectants solutions in both facilities. There was no partograph which is crucial in monitoring labor progress and taking timely action. In one of the health center there were no apron, rubber sheet and screen in the delivery room. Concerning drugs oxytocin is found in one of the HC but there was no any uterotonics found in the other HC at the time of the observation. Intravenous fluids like normal saline and ringer lactate were also present at both HCs but they were not adequate. Injectable antibiotics and anticonvulsants (Diazepam) were found in only one of the HC. Injectable preparations of antihypertensive drugs like hydralazine were not found in both HCs. The drugs and supplies in both HCs were stored haphazardly and their stocks were not well monitored.

In general, it was found that both HCs were not equipped to the minimum standard required to provide basic emergency obstetric care. Besides, the two HCs themselves are different in many aspects of the facilities, supplies and equipments.

6. Discussion

This community-based study has attempted to identify factors affecting safe delivery service utilization in Sheka Zone, SNNPR. Consequently, factors influencing safe delivery services utilization of child bearing age women in the zone were identified. The factors were related to the mother (user) and health facility (provider) related. Most of these findings are consistent with most studies conducted elsewhere in Ethiopia or abroad.

Unlike most studies (5, 11, 13, 30), this study did not show the effect of residence on safe delivery service utilization. The current study was conducted at the kebeles accessible to HCs which are located at towns. In addition, the towns are small and do not have significant difference in many aspects with that of the nearby rural kebeles. These could explain the inconsistencies.

In this study, age was not an independent predictor of maternal delivery care utilization, unlike few studies (28, 31). One of the study suggested that women over 35 years of age are in a better position to access health care because they are more empowered to voice their needs and had more control over family resources (28). On the other hand, a study in Tanzania suggested that the new generation younger women could have formal education and have different perspectives on delivery care compared to the older generations (31).The two round EDHS also indicated that mothers younger than 35years are more likely to utilize delivery care than the older (5).

In this study age of the mothers showed significant association in crude analyses but did not show independently after adjusting for obstetric variables like parity. However, parity has showed significant association independently in many studies including this study (11, 13). On the other hand, age and parity were strongly associated. Hence, the association might be confounded by parity of the mother.

This study revealed that education is an independent predictor of safe delivery service utilization. Women who completed at least secondary school were more than three times more likely to give birth at health facilities compared to uneducated mothers. The finding is consistent with many studies in Ethiopia and other developing countries (11, 13, 30, 56). This can be explained in different ways. Education is likely to enhance female autonomy so that women develop greater confidence and capability to make decisions about their own health (14).In the current study, maternal education was also associated with decisions on where to give birth x^2=8.4, p=0.02. In addition, education leads to better health awareness so that educated women seek out higher quality services and have greater ability to use health care inputs that offer better care (35, 57).

Consistent with different studies mothers whose husbands had completed at least secondary school and employed were more likely to get safe delivery care compared to their counter parts. Since education leads to better health awareness and this may sensitize the family to decide and utilize health care provided at various facilities. Therefore, husbands with better education and better income could be able to decide timely and pay service and related fees required easily than their counter parts (28, 30). However, paternal education was not an independent determinant and that might be confounded by maternal education. Educations of the husbands were strongly associated with their wives education (x^2=135.6, p<0.001).

Consistent with other studies (28, 53) this study also indicated housewives were less likely to deliver at health facilities. A study in India also indicated that mothers engaged in gainful activities who could decide by themselves were more likely to use delivery care (28, 53). However, maternal education and their occupation were strongly associated (x^2 =33.8, p<0.001), hence maternal occupation was not an independent predictor of safe delivery service utilization.

Consistent with many studies done in Ethiopia and abroad, birth order was found to be an independent determinant for use of safe delivery services (11, 13, 24, 31). The current study has revealed that higher birth order mothers are less likely to give birth at HFs

compared to those with lower order births. As birth order increased the chance of giving birth at health institution decreased. 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 for their first child 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 may result in low parity women being more motivated to deliver in medical facilities than high parity women (11, 13, 31, 32). In Contrast, many studies reported that grand multiparas and primiparas are at greatest risk of maternal mortality and morbidity as well as having poor delivery outcome implying much effort has to be made to avert the practice (58, 59)

The health care that a mother receives during pregnancy and time of delivery is important for the survival and well being of the mother and child (2). In the present study majority (80.3%) had received prenatal care during the last pregnancy. The high coverage could be attributed to the provision of ANC with locally available materials at outreach sites and home, as mentioned by the key informants. Besides, the study areas are accessible to health facilities which might encourage their use. However, only 28.3% of those who received ANC gave birth at HFs for the respective conception. On the other hand, the core aim of providing ANC is to promote skilled attendance at birth. This implies need for further investigation on the huge gap between ANC and delivery care utilization which need to be linked to each other.

The study showed that women who received prenatal care were more than two times more likely to utilize professionally assisted delivery (PAD) than those who did not. The finding is consistent with many studies conducted elsewhere (11, 30, 39, 40). In contrast, a study in Uganda suggested attendance at antenatal care actually may discourage delivery in a health unit; women who were told that their pregnancy is normal see no reason to deliver at the health unit (32). However in the current study only 5.3% women gave birth at home because they were told their pregnancy was normal implying ANC did not discourage them.

On the other hand only 9.4% of the women had ever given birth at HFs before the immediate birth, of them majority (76.9%) had delivered their last baby at health institutions. Not surprisingly, mothers who had experience of giving birth at HFs are more than 20 times more likely to deliver at HFs than those never delivered at HFs. Consistent with the finding, studies conducted in SNNPR Ethiopia and Cambodia showed that women's use of skilled attendance at delivery for the most recent pregnancy was strongly related with receiving care for the preceding birth (12, 38). This can be due to mothers' confidence and trust on HFs developed following previous use of the services. It implies promotion of consistent practice of maternity care utilization might increase service reception by mothers.

Another important finding of the current study was that mothers who faced problems during the immediate pregnancy were more than 18 times more likely to give birth at HFs than those who had such problems. Studies conducted in Bangladesh and Gonder, Ethiopia showed similar findings (11, 39).This could imply that women visit HFs only when difficulties arise and home trials fail which might be attributed to poor knowledge and possible HF factors. Findings from the key informants also agree with this.

With regard to reasons for preferring home delivery, smooth and short labor duration, preference to deliver in the presence of relatives, previous normal home delivery experience and lack of transport were mentioned. In this study, only 5.6% of the mothers who encountered birth problems used vehicle as a means of transportation to HFs. Similar reasons were raised in studies conducted in different areas of similar setting (11, 27, 33,41).This might suggest low maternal awareness in timing and signs of labor and great need of relatives support during labor. The key informants also stated low maternal knowledge might attribute for home delivery and majority of mothers reside in inaccessible areas with no transportations.

Mode of delivery is among the indices commonly used for safe delivery. In the current study, only about 2% of deliveries were by cesarean section depicting inaccessibility of

comprehensive emergency care units. The finding is almost consistent with that of Gonder 1.5% and SNNP 1 % (5, 11). However, it is far below the minimum standard 5% recommended by WHO (60). The relatively higher figure can be explained by the study populations being from urban and the nearby kebeles in contrast to the similar studies. The lower rate from the recommended can be explained by inaccessible emergency obstetric services and inconvenient referral systems during obstetric emergencies. Consistent with the studies, the current study had also showed inadequate skilled professionals and absence of hospital or ambulance for referral of emergency cases in the Zone.

On the other hand the other index for safe delivery is presence of skilled attendant at birth. In this particular study almost all of the deliveries took place at HFs were attended by nurses and above professionals but none of the home deliveries were attended by skilled attendants. Similar findings were obtained in studies conducted in Iran (29).This implies absence of community based delivery care as mentioned by the key informants. However, community based maternity care programs in Bangladesh have brought changes in the coverage and maternal mortality particularly for those inaccessible to EMOC units (61).

In the current study, maternal knowledge on pregnancy and labor warning signs were not independent predictors of safe delivery service utilization, but a study conducted in India indicated that lack of recognition of perceived seriousness of health problems as a significant reason for not seeking health care that accounted for half of maternal deaths (59). This might imply that mother who is able to recognize danger signs could have greater fear of the possible outcomes of the signs so that they would be encouraged to deliver at HFs. Moreover, maternal awareness of warning signs during pregnancy and labor encourage timely decision to utilize HFs. In this study, of those encountered the danger signs majority were taken to HFs to consult health professionals. The association between maternal awareness of danger signs might be confounded by their education. It is obvious that more educated mothers tend to have better awareness on warning signs of pregnancy and labor (x^2= 12.9, p=0.01).

Many studies had showed the availability, accessibility and affordability of health facilities were strong predictors of general health care utilization and child birth care in particular (47, 48, 62). The studies indicated that availability and access to HFs equipped with modern maternity facilities has a significant positive impact on the health-seeking behavior and pregnancy outcome of rural women (62). Inconsistent with the studies the present study revealed that accessibility and availability of HFs in the nearby were not associated with use of safe delivery. This could be due to sampled women being taken from those accessible to HCs. Moreover, it is obvious that mere presence of facilities do not assure utilization of services. It should be well equipped, staffed and provide quality service to the standard. A study conducted in India showed access to health facilities equipped with modern maternity facilities motivates mothers to utilize the available services (62). However, in the current study area, both the key informant interview and observation findings depicted that the nearby HCs lack minimum facilities and equipments needed to provide basic emergency obstetric care (EmOC). Therefore, this might be among the possible reasons for the lack of inconsistencies but further investigation is needed for exploring the actual reasons.

6.1 Strengths and Limitations of the study

6.1.2 Strengths

- Data collectors being HEWs reduce both selection and information biases since they know all the localities of their respective kebeles, well known, live with them, speaks local languages and of the same sex with study subjects.
- Assessed both user and provider perspectives of safe delivery.
- Absence of non responses
- Different tools and methods employed so that findings were triangulated

6.1.2 Limitations

- For time and logistic reasons the study was conducted on accessible kebeles so that it might not be generalizable to all women in the Zone but could work for areas with similar setting.
- Since the design is cross sectional temporal relations could not be assessed
- There could be recall bias since the women were asked for events within the last five years prior to the survey. However, the most recent births were considered and local events were utilized to remind them.

7. Conclusion

The following conclusions were made from this study.

- Factors associated with safe delivery service utilization are interrelated to each other and related to the mother and health system.
- Educational status of the women was independent predictors of safe delivery service utilization.
- Birth order, use of ANC, intrapartum birth complication and previous delivery at health institutions were independent obstetric determinants of safe delivery service utilization.
- The observed health facilities lack minimum equipments, supplies and facilities required to provide appropriate delivery care.
- There were poor health record keeping and inventory of materials at the facilities.
- There was also poor referral linkage between the community and health centers and health centers and hospitals.
- Even though majority of the mothers used ANC, only 28 percent of them delivered at health facilities and the rest majority delivered at home with help of relatives or TBAs depicting gap between ANC and delivery care.

8. Recommendations

Based on the findings of the study, the following areas were identified and specific recommendations were made.

General

- Women's education should be promoted to at least beyond the primary.
- Women engagement in gainful employments should be promoted.

To health care providers

- Health care providers should provide information on risks of pregnancy, benefits of giving birth at health facilities, danger signs during pregnancy and labor to mothers, family members and the community.
- Record keeping and inventory of supplies at HFs should be improved.
- Antenatal care should be promoted and linked with delivery care

To local health sector officials

- Health facilities need to be equipped with basic supplies and equipments
- Health centers should be equipped with vehicles for referrals
- Referral linkage between HPs and HCs and hospitals should be strengthened
- In service training on EMOC for health care providers should be given.

To community

- Community support groups should be formed to facilitate timely referral of labory mothers.
- Community members should discourage harmful traditional practices those hinder HF delivery care utilization.

Research

Further research should be conducted on:

- Quality of maternal health services, particularly delivery service
- Skill of different level health workers on delivery attendance
- Reasons for gaps between ANC and delivery care utilization
- Maternal perceptions and attitudes towards HF delivery care

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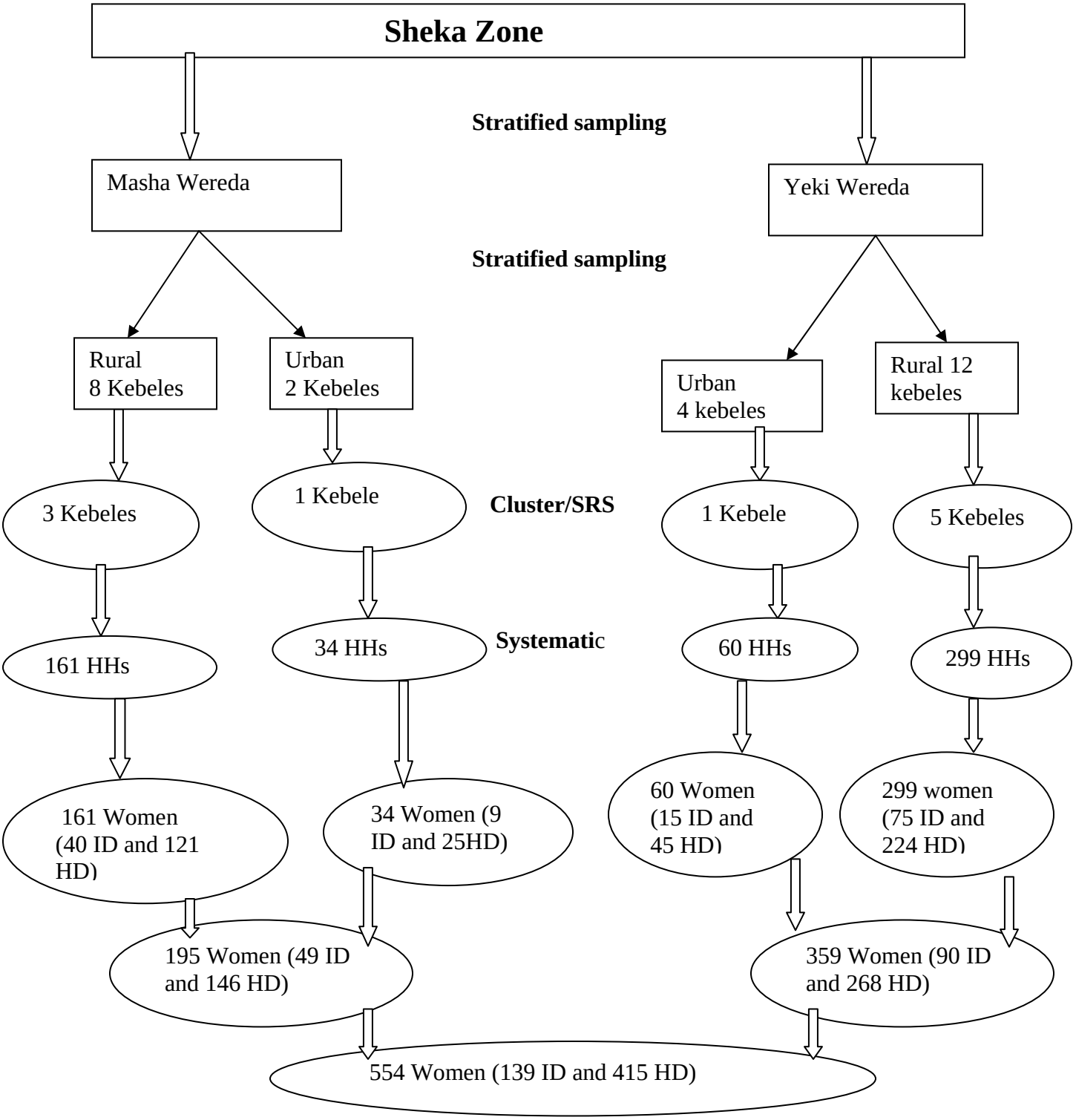
10. Annexes

A. Annex 1 Schematic presentation of sampling procedure



SRS- Simple Random Sampling, ID- delivered at health institution, HD-delivered at home

B. Annex 2 List of kebeles selected among those within 5 to 10 Kms from the towns.

S.no.	Kebele	HHs	Sample taken			Sampling interval for HHs
			ID	HD	Total	
Masha Wereda						
1	Gembaka	348	11	33	44	7
2	Shibo	430	14	41	55	8
3	Wolo	493	15	47	62	8
	Total	1271	40	121	161	
	Masha 02	511	9	25	34	15
	Sub total	1782	49	146	195	
Yeki Wereda						
1	Shosha	578	13	39	52	11
2	Hibretfire	686	16	47	63	11
3	Kukey	723	16	48	64	11
4	Endrese	682	16	47	63	10
5	Shuma	640	14	43	57	11
	Total	3309	75	224	299	
	Tepi 03	613	15	45	60	10
	Sub total	3912	90	269	359	
	Grand total	5694	139	415	554	

C. Annex 3 English Version of Structured Questionnaire

School of public health, Faculty of Medicine, Addis Ababa University

A structured Questionnaire for interview of women to asses factors associated with safe delivery service utilization among the women.

Verbal Consent Form

Hello, my name is _____ and I am from the research team of SPH, AAU which is currently carrying out Survey of safe delivery service utilization among women of child bearing age in sheka zone, in scientifically sampled kebeles. As part of this survey we are collecting your information on socio-demographic, obstetric, perception and knowledge about pregnancy risk, and health service utilization. Health professional attendance at child birth improves maternal and newborn health. However, many mothers are not getting this important service. That is why we are collecting this information to identify factors influencing utilization of this important service. This information enables the government and other stakeholders to develop programs to improve maternal health services. The interview will take about 30minutes .Be assured that your name will not be recorded and any other identifying information will be kept confidential and burnt at the end of the survey.

Your participation is voluntary and you have the right not to participate fully or partially. Your decision about not to participate is respected and will not affect the health care you would normally receive. You may stop the interview at any time. Do you have any questions on what we talked so far?

Now, do you agree to participate in the survey?

Yes_____ No _____If no respect the decision and thank her .If yes continue the interview.

Interviewer name _____ signature _____ Date_____

Supervisor name _____ Signature _____ Date_____

1 .House holds 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 One; Respondents Socio-demographic information

S.n	Questions	Alternative /choice of response	Code	Skip
101	What is your age in completed years?	----------		
102	What is the highest grade you completed?	1. College degree or higher 2. College diploma 3. Tech./voc. Certificate 4. 07 and above grade 5. 00-06 grade 6. Read and write 7. Cannot read and write		
103	To which religion do you belong?	1. Orthodox Christian 2. Moslem 3. Protestant 4. Catholic 5. Traditional 6. Other, specify-----		
104	To which ethnic group do you belong?	1. Shekicho 2. Keficho 3. Sheko 4. Amahara 5. Gurage 6. Oromo 7. Mejenger 8. Other, specify-------		
105	What is your occupation?	1. House wife 2. Farmer 3. Gov't employee 4. Private employee 5. Merchant 6. Housemaid 7. Student 8. Other, Specify-----		
106	How much do you earn per month in ETB from this employment?	----------		

107	What is your current marital status?	1. Married 2. Divorced 3. Separated 4. Widowed 5. Never married 6. Other specify------		112
108	How old were you during your 1st marriage in completed years?	----------		
109	What is the highest grade your husband completed? Ask for those currently married.	1. College degree or higher 2. College diploma 3. Tech./voc. Certificate 4. 07 and above grade 5. 00-06 grade 6. Read and write 7. Cannot read and write		
110	What is your husband's current occupation?	1. Farmer 2. Gov't employee 3. Private employee 4. Merchant 5. Daily laborer 6. Other specify----------		
111	How much do your husband earn from the work?	----------ETB/month		
112	How many are you usually living in your house hold?	----------		
113	How much is your total household income per month in ETB?	----------		
114	Who is the decision maker for any house hold expenditures?	1. Self 2. Husband 3. Self and Husband jointly 4. Other, specify-----		

Part Two; Obstetric Information

No	Questions	Alternative /Choice of response	Code	Skip
201	How many times you have been pregnant in your life ?Probe for abortions, still births and current conception	----------		
202	How old were you at your 1st pregnancy in completed years?	----------		
203	How old were you at your last pregnancy?	----------		
204	What were the outcomes of the pregnancies? (Ask for each item and put numbers on the space provided.)	1. Total live birth------- 2. Abortion ---- 3. Still birth-------- 4. Died within seven days-- 5. Died b/n 7days and birthday- 6. Live birth survived to>1yr--- 7. Other specify------		

205	Are you pregnant now?	1. Yes 2. No 3. I donot know		208
206	How many months pregnant are you?	-------		
207	Have you started ANC follow up?	1. Yes 2. No		
208	When was your last pregnancy?	----------months/years back		
209	Was the pregnancy planned?	1. Yes 2.No		
210	Did you receive antenatal care for the pregnancy?	1. Yes 2. No 3		No- 213
211	Whom did you see during your ANC visit?	1. Physician 2. Health officer 3. Nurse 4. Health Assistant 5. HEW 6. Trained traditional birth attendant 7. Untrained birth attendant 8. Community Health Agent(CHA) 9. other (specify)---------		
212	How many times did you visit for the care till delivery?	----------		
213	Where did you deliver your last baby in the past five years?	1. In my home 2. Others home 3. On the road 4. Hospital 5. Health center 6. Private clinic 7. Growing health center 8. Health post 9. Other, specify		
214	Why do you prefer to deliver at home? (Ask for those delivered at home only.) More than one response is possible	1. Too much cost of HFs 2. Facility not open regularly 3. Facility too far 4. Poor quality service of HFs 5. No female provider at HFs 6. Husband will not allow 7. Need to be with relatives 8. Unwelcoming approach of health workers 9. Presence of TBAs 10. Labor was smooth and short 11. Previous HDs was normal 12. Lack of accompanies 13. I was told my pregnancy is normal 14. Lack of transport 15. Other(specify)-----		

215	Why did you prefer to deliver at Health facility? Ask for those delivered at health institutions.	1. HF was near to me 2. Need Better service 3. Previous better out come with delivering at HF 4. I was told to deliver at health facilities 5. Difficult labor 6. Bad outcome with previous HD 7. Other, specify-----		
216	What was the mode of your last delivery?	1. Spontaneous vaginal delivery 2. Instrumental delivery 3. Cesarean section 4. I did not remember 5. Other specify----		
217	Who assisted your last child birth?	1. Physician 2. Health officer 3. Nurse 4. Health extension workers 5. TTBA 6. TBA 7. Community Health agent 8. Mother 9. Husband 10. Mother in law 11. No one 12. Other (specify)----		
218	What was the condition of your last baby?	1. Live birth 2. Live birth but died soon after 3. Died before birth day 4. Still birth 5. Other specify----		
219	Did you encounter any health problems during labor, delivery and immediately after birth during your last delivery?	1. Yes 2. No 3. I don't remember		2 or 3 to 224
220	If yes, what were the problems?	1. Excessive Vaginal bleeding 2. Prolonged labor(>12 hrs) 3. Retained placenta (>1hr) 4. Inability to control urine/faces/both 5. Mal-presentation 6. Fetal death 7. Early rupture of membrane 8. Loss of consciousness 9. Other, specify……		
221	What measures were taken to alleviate the problem?	1. Taken to health facility		

		2. Took traditional medicine 3. Consulted TBA 4. No action taken 5. Other, specify…		
222	If you were taken to HF, were you referred further?	1.Yes 2.No		
223	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		
224	According to your birth order, where does the last baby belong?	1. First 2. Second 3. Fourth 4. Fifth and above		
225	Did you encounter any health problems during labor, delivery and immediately after birth during immediate next to your last delivery?	1. Yes 2. No 3. I don't remember		
226	If yes, what were the problems?	1. Excessive Vaginal bleeding 2. Prolonged labor(>12 hrs) 3. Retained placenta (>1hr) 4. Inability to control urine/faces/both 5. Mal-presentation 6. Fetal death 7. Early rupture of membrane 8. Loss of consciousness 9. Other, specify……		
227	Have you ever given birth at HFs before your last birth?	1. Yes 2. No 3. I do not know		
228	If yes in how many pregnancies?	----------		

Part Three Women perception, knowledge and Attitudes

301	Are you aware of any health risks a woman might experience during pregnancy?	1. Yes 2. No		
302	If yes what are the risks?	1. Pregnancy related disease 2. Maternal death 3. Fetal death 4. Other specify		
303	Do you know any danger signs of pregnancy?	1. Yes 2. No		
304	If yes, what are the danger signs? Circle the mentioned responses.	1. Swelling of leg/face 2. Vaginal bleeding 3. Reduced/absence of fetal		

		movement 4. Severe head ache 5. Severe abdominal cramp 6. Excessive weight gain 7. Increased BP 8. Severe difficulty of breathing 9. Leakage of amniotic fluid without labor 10. Fever 11. Blurring of vision 12. Other specify-----		
305	Did you experience any of the danger signs during your last pregnancy?	1. Yes 2. No 3 I do not know		
306	If yes, what action did you take?	1. Consulted health workers 2. Consulted TBA 3. Used traditional medicine 4. Did not take any action 5. Other specify		
307	Do you know any danger signs of labour?	1. Yes 2. No		
308	If yes, what are the danger signs do you know? Multiple responses are possible.	1. Prolonged labor >12hrs 2. Early rupture of membrane 3. vaginal bleeding 4. Placenta retention >1hr 5. Mal-presentation 6. Increased BP 7. Convulsion 8. Cessation of labor pain 9. Severe continuous abdominal pain 10. Other, specify----		
309	Do you think giving birth at home has risks?	1. Yes 2. No		
310	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------		
311	Do you know any benefits of giving birth at HFs?	1. Yes 2. No		

312	If yes, what benefits do you know?	1. Early detection of problems 2. Timely RX of problems 3. Lower maternal exhaustion 4. Better new born care 5. HTPS can be avoided 6. Lower maternal postpartum morbidity 7. Other specify--------		
313	Do you know most complications of labor are preventable?	1. Yes 2. No		
314	Do you know most complications of Labour are treatable?	1. Yes 2. No		
315	Any pregnant women are susceptible to face delivery complications.	1. Agree 2. Disagree 3.In different		
316	Like any pregnant women, I am susceptible to face delivery complications.	1. Agree 2. Disagree 3.In different		
317	Delivery complications can be severe and may be hazardous to my well being.	1. Agree 2. Disagree 3.In different		
318	Delivery complications can be severe and may be hazardous to the newborn.	1. Agree 2. Disagree 3.In different		
319	Being attended by a skilled delivery attendant may be beneficial to my well being.	1. Agree 2. Disagree 3.In different		
320	Being attended by a skilled delivery attendant may be beneficial to the newborn's well being.	1. Agree 2. Disagree 3.In different		
321	Health professionals at HFs are skilled enough to detect and treat or refer delivery complications.	1. Agree 2. Disagree 3.In different		
322	Health facilities in nearby are adequately equipped to provide delivery service.	1. Agree 2. Disagree 3.In different		
323	Health facilities in nearby are staffed with skilled professionals to provide delivery service.	1. Agree 2. Disagree 3.In different		

Part Four Women health service utilization

401	Is there health facility in your vicinity?	1.Yes 2.No		
402	If yes, how far is it?	_____kms or _____walking hours		
403	What type of health facility is it?	1. Health post 2. Growing health center 3. Health center 4. Hospital 5. Private clinic 6. other specify		

404	Does the health facility provide delivery care?	1.Yes 2.No 3.I do not know		
405	Have you ever used any modern health facility?	1.Yes 2.No 3.I do not know		
406	If yes, what services did you get so far?	1. ANC 2. Delivery 3. PNC 4. Immunization 5. Family planning 6. Curative services 7. Other specify…		
407	If no, what are the reasons?	1. Facility too far 2. Not seriously ill 3. High cost of facilities 4. Culturally prohibited 5. Presence of traditional healers 6. Too busy with HHs chores 7. Others specify….		
408	Have you ever given births at HFs?	1. Yes 2.No		
409	If yes, how did you receive the service?	2. Free of charge 3. On payment basis 4. I do not remember		
410	If you received on payment, how much did you pay during your most recent HF delivery service?	--------ETB		
411	What was your opinion on the payment?	1. Unaffordable 2. Fair 3. Cheap 4. I do not have suggestions		
412	Were you able to pay for the services?	1. Yes 2.No		
413	Who decides your health service utilization?	1. Self 2. Husband 3. Relatives 4. Religious leader 5. Other specify….		
414	Who decides place for your child birth?	1. Self 2. Husband 3. Relatives 4. Religious leader 5. Other specify….		
415	Who decides about whom would attend your delivery?	1. Self 2. Husband 3. Religious leader 4. Cultural leader 5. Other specify….		

D.Annex 4 Amharic version of questionnaire

በአዲስ አበባ ዩንቨርሲቲ ሀክምና ፋኩሊቲ የህብረተሰብ ጤና ትምህርት ቤት

መግለጫ የእናቶችን ወሊድ አገልግሎት አጠቃቀም የሚያግዱ ጉዳዮችን ለማጥናት የተዘጋጀ መጠይቅ

የሚስጥር አጠባበቅ ስምምነት

ጤና ይስጥልኝ
እኔ----------እባላለሁ። በአዲስ አበባ ዩኒቨርሲቲ ሀብረተሰብ ጤና ትምህርት ቤት የጥናት ቡድን አባል ነኝ። ጥናቱ በሳይንሳዊ ዜዴ በተመረጡ ቀበሌዎችና ቤቶች ላይ የሚሰራ ነዉ። የጥናቱ ዓላማ እናቶች የወሊድ አገልግሎት እንዳይጠቀሙ የሚያግዱትን ጉዳዮች ለይቶ የመፍትሄ መንገዶችን መጠቆም ነዉ።

ለዚሁ ዓላማ የርስዎን ማህበራዊና ስነ ህዝባዊ፣ የፅንስ ሁኔታዎች፣ በእርግዝናና ወሊድ ጊዜ ችግሮች ላይ ያሎትን ግንዛቤና አመለካከት መረጃዎች እንሰበስባለን። በመሆኑም የሚሰጡን መረጃ መንግስትና ሌሎች ጉዳዩ የሚመለከታቸዉ አካላት የእናቶችን ወሊድ አገልግሎት አጠቃቀም ለማሻሻል የመፍትሄ መንገዶችን እንዲቀይሱ ይረዳቸዋል። ያለባለሙያ እገዛ የሚወለዱ እናቶችና የሚወልዳቸዉ ህጻናት በከፍተኛ ሁኔታ እስከሞት ለሚያደርሱ ጉዳቶች ይጋለጣሉ።

በጥናቱ ላይ የሚሳተፉት በፍላጎትዎ ሲሆን በሙሉም ሆኔ በከፊል ያለመሳተፍ መብትዎ የተጠበቀ ነዉ። ጥናቱ ላይ ያለመሳተፍ ዉሳነዎ የተከበረ ከመሆኑም በላይ የጤና አገልግሎት አጠቃቀሞት ላይ ምንም ዓይነት ችግር አይከሰትም። በሚንሰበስባቸዉ መረጃዎች ላይ ስምዎት ስለማይመዘገብና ሌሎችም መለያ መረጃዎች በሚስጥር ተጠበቀዉ ከጥናቱ በሓላ ስለሚቃጠሉ ምስጥሮት እንደማየባክን እርግጠኛ ይሁኑ።

ቃለመጠይቁ 30 ደቂቃ'ች ያህል የሚወስድ ሲሆን በማንኛዉም ጊዜ ማቆም ይችላሉ። እስካሁን በተነጋገርናቸዉ ጉዳዮች ላይ ያልገባዎትና ግልፅ ያለሆኔ ነገር ካለ መጠየቅ ይችላሉ። አሁን በጥናቱ ላይ ለመሳተፍ ተስማምተዋል?
አዎን---------- አይደለም---------- ፈቃደኛ ካለሆኑ ዉሳነያቸዉን አክብረሽ በማመስገን ወደ ቀጣዩ ቤት ሂጂ።
የተስማሙ ከሆኔ ቃለ መጠይቁን ቀጥይ

ቃለ መጠይቁን ያደረገችዉ ስም---------- ፊርማ-------- ቀን----------
የተቆጣጣሪዉ ስም----------ፊርማ---------ቀን----------

የመጠየቁ መለያ ----------
ወረዳ/ከተማ አሰ/ር----------ቀበሌ----------የቤት ቁጥር----------

ክፍል 1 ማህበራዊና ሰነ ህዝባዊ መረጃዎች

ተ.ቁ	ጥያቄዎች	አማራጭ መልሶች	ወደ
101	እድሜዎ ስንት ዓመት ነው?	----------	
102	ከፍተኛው የትምህርት ደረጃዎት ምንድን ነው?	1. የኮሌጅ ዲኘሎማና በላይ 2. ተክኒክና ሙያ ሰርተፍኬት 3. ከ7ኛ-12ኛ ክፍል 4. ከ0 - 6ኛ ክፍል 5. ማንበብና መፃፍ እችላለሁ 6. ማንበብና መፃፍ አልችልም	
103	የትኛዉ ሃይማኖት ተከታይ ነዎት?	1. ኦርቶዶክስ ክርስቲያን 2. እስልምና 3. ኘሮተስታንት 4.ባህላዊ እመነት ተከታይ 2. ሌላ ይጥቀሰ----------	
104	የትኛው ብሔር አባል ነዎት?	1. ሸካቾ 4. አማራ 7. መገርንግር 2. ካፍቾ 5. ትግሬ 6 .ኦሮሞ 3. ሸኮ 8. ሌላ ይጠቀስ	
105	ሥራዎት ምንድን ነው?	1. የቤት እመቤት 2. ግብርና 3. የመንግስት ቅጥረኛ 4 የግል ቅጥረኛ 5. ነጋዴ 6. የቀን የጉልበት ሰራተኛ 7. የቤት አገልጋይ 8. ተማሪ 9. ሌላ ይጥቀሱ	
106	ከዚሁ ሥራ ምን ያህል ገቢ ያገኛሉ?	----------ብር በወር	
108	አሁን የጋብቻ ሁኔታዎት ምንድን ነው?	1. ያገባ 2. የተፋታ 3. የተለያዩ 4. ባል የሞተባት 5 ፈፅሞ ያላገባ 6. ሌላ /ይጥቀሱ/---	
109	መጀመሪያ ስያገቡ እድሜዎት ስንትነበር?	----------አመት	

110	የባለቤቶት የትምህርት ደረጃ ምንድነው? አሁን አግብቶ ላሉ ብቻ የሚጠየቅ	1. የኮሌጅ ዲኘሎማና በላይ 2. ተክኒክና ሙያ ሰርተፍኬት 3. ከ7ኛ-12ኛ ክፍል 4. ከ0 - 6ኛ ክፍል 5. ማንበብና መፃፍ ይችላል 6. ማንበብና መፃፍ አይችልም	
111	ባለበቶት ስራቸዉ ምንድነዉ?	1. ግብርና 2. የመነግስት ቅጥረኛ 3. የግል ቅጥረኛ 4. የቀን /የጉልበት/ ሰራተኛ 5. ነጋዴ 6. ሌላ ይጥቀሱ	
112	ከዚሁ ሥራ ምን ያህል ገቢ ያገኛሉ?	----------ብር በወር	
113	አብዛኛዉን ጊዜ አንድ ላይ የሚኖረዉ የቤተሰባችሁ ቁጥር ምን ያህል ነው?	----------	
114	ለተለያዩ ፍጆታዎች ብር ወጪ እንዲሆን የሚያዘው ማን ነው?	1. ራሴ 2. ባለቤቴ 3. እኔና ባለቤቴ 4. ሌላ ይጥቀሰ---------	

ክፍል ሁለት እርግዝናና ፅንስ መረጃዎች

201	በህይወት ዘመንዎ ስንት ጊዜ አረገዙ? ውርጃዎችና ሞቶ የተወለዱ እንዳሉ ጠይቂ	----------	
202	መጀመሪያ ስታረግዙ እድሜዎት ስንት ነበር?	----------አመት	
203	በመጨረሻው እግርዝና እድሜዎ ስንት ነበር?	----------አመት	
204	የእርግዝናዎቸዎ ዉጤቶች እንደት ነበሩ? እርግዝናዎችን በማሰታወስ ለእያንዳንዱ በቁጥር ይሞላ	ጠቅላላ በህይወት የተወለዱ--------- ዉረጃ --------- ሞቶ የተወለዱ--------- ተወልደዉ ከ7 ቀናት በፊት የሞቱ--------- ከ7 ልደት በዓል በፊት የሞቱ--------- ከአመት በላይ የቆዩ---------	

		ሌላ ይጠቀስ---------	
205	አሁን እርጉዝ ነዎት?	1. አዎን 2. አይደለሁም 3. አላውቅም	
206	የስንት ወር እርጉዝ ነዎት ?	---------ወራት	
207	የእርግዝና ክትትል ጀምረዋል?	1 አዎን 2. አይደለም	
208	የመጨረሻ እርግዝናዎት መቼ ነበረ?	-------ዓመት ወራት በፊት	
209	እርግዝናዉ የታቀደ ነበር?	1. አዎን 2. አይደለም	
210	ለመጨረሻው እርግዝናሽ የቅድመ ወሊድ ክትትል ነበርዎት?	1. አዎን ነበረኝ 2. አልነበረኝም 3 አላስታዉሰም	
211	ማን ነው የቅድመ ወሊድ ክትትል ምርመራ የሚያደርግልዎ የነበረው?	1. ዶክተር /ሃኪም/ 2. ነርስ 3. ጤና መኮንን 4. ጤና ረዳት 5. የጤና ኤክስቴንሽን ሠራተኛ 8. የጤና ተጠሪ 6. የሰለጠነች ልምድ አዋላጅ 7. ያልሰለጠነች ልምድ አዋላጅ 9. ሌላ ይጥቀሰ----------	
212	እስኪወልዱ ድረስ ስንት ጊዜ ክትትል አደረጉ?	----------	
213	የመጨረሻ እርግዝናዎትን የት ነበር የወለዱት?	1. የራሴ ቤት 2. የሌላ ሰው ቤት /ይጠቀስ/---------- 3. መንገድ ላይ 4 ሆስፒታል 5 ጤና ጣቢያ 6. የግል ክሊኒክ 7 ታዳጊ ጤና ጣቢያ 8. ጤና ኬላ 9 ሌላ ይጠቀስ----------	
214	ለምን ነበር ቤት የወለዱት /ምርጫውን አታንቢቢ	1. የጤና ተቋማት ክፍያ ብዙ ስለሆነ 2. ጤና ተቋማት ሁልጊዜ ክፍት ሰለማይሆኑ 3. ጤና ተቋም ሩቅ ስለሆነ 4. የጤና ተቋማት አገ.ት ጥራት አነስተኛ ስለሆነ 5. ሴት ባለሙያዎች ሰለማይኖሩ	

		6. ባለበቱ ጤና ተቋም እንዲሄድ ስላለፈቀደ 7. ዘመዶቼ ባሉበትመወለድ ሥለፈልኩ 8. የጤና ባለሙያዎች አቀራረብ ጥሩ ሥላልሆነ 9. የልምድ አዋላጆች ስለነበሩ 10. የምጥ ጊዜ አጭር ስለነበረ 11. ከአሁን በፊት ቤት ወልጀ ችግር ስላልገጠመኝ 12.የሚወሰደኝ ስላለነበረ 13.እርግዝናዬ ችግር እንደሌለበት ስለተነገረኝ 14.ለመንገዝ የትራንስፖርት /ገንዘብ/ ችግር 15.ሌላ ይጥቀሰ----------	
215	በጤና ማዕከል ውስጥ የወለዶበት ዋነኛ ምክንያት ምንድነው?(ምርጫዎች አይነበቡም)	1. ከሚኖርበት ቦታ ቅርብ ስለሆነ 2. የተሻለ እንክብካቤ ለማግኘት 3. ከዚህ በፊት ጤና ማዕከል ወልጀ ጥሩ ነገር ስላጋጠመኝ 4. ጤና ተቋም እንድወልድ ስለተነገረኝ 5. የወሊድ ችግር ስላጋጠመኝ 6. ከዚህ በፊት ቤተ ወልጀ ችግር ስለገጠመኝ 7. ሌላ ምክንያት ካለዎት ይጥቀሱ	
216	የመጨረሻዉ ልጅዎን የወለዱበት በምን መልኩ ነው ?	1. በማህፀን በኩል ያለምንም መሳሪያ 2. በማህፀን በኩል በማወላጃ መሳሪያ 3. በሆዴ በኩል ቀዶ ጥገና ተደርጉልኝ 4. በትክክል አላስታውስም 5. በሌላ ሁኔታ ከሆነ ይጥቀሱ	
217	የመጨረሻ ወሊድዎትን ያገዝዎት /ያዋለድዎት ማን ነበር?	1.ዶክተር /ሃኪም/ 2. ጤና መኮንን 3. ነርስ 4. የጤና ኤክስተንሽን ሠራተኛ 5. የሰለጠነች ልምድ አዋላጅ 6. ያልሰለጠነች ልምድ አዋላጅ 7. የጤና ተጠሪ 8 እናቴ 9 ባሌቤተ 10 የባሌበቴ እናት 11 ማንም አላገዘኝም 12 ሌላ ይጥቀሱ	

218	የህፃኑ ሁኔታ እንዴት ነበር	1. በህይወት ነዉ የተወለደዉ 2. በህይወት ተወለዶ በዚያዉ ሞታል 3. 7 ቀናት ሳይሞላዉ ሞታል 4. ሞቶ ነዉ የተወለደዉ 5. ሌላ ይጠቀስ	
219	በመጨረሻው እርግዝናዎት ወሊድ ጊዜ የጤና ችግር ገጥሞት ነበር?	1. አዎን 2. አይደለም 3. አላስታውስም	
220	ምን ምን ችግሮች ነበሩ የገጠሞት?	1. ከመጠን ያለፈ ደም መፍሰስ 2. የምጥ መዘግየት 3. እንግዴ ልጅ መዘግየት /ከ1 ሰዓት በላይ/ 4. ሽንትና አይነ ምድር መቆጣጠር አለመቻል 5. የፅንስ አመጣጥ ትክክለኛ አለመሆን 6. የሽል ሞት 7. የሽርት ዉሃ ያለጊዜዉ መፍሰስ 8. ራስ መሳት 9. ሌላ ይጠቀስ	
221	ለችግሮቹ ምን መፍትሔ ነበር የወሰዱት / የተወሰደዉ?	1. ወደ ጤና ተቆም ሄድኩ 2. የልምድ አዋላጅ አማከርኩ 3. የባህል መድሀኒት ተጠቀምኩ 4. ምንም አልተደረገም 5. ሌላ ይጠቀስ ( )	
222	ወደ ጤና ተቋም ሄደዉ ከሆነ ከሄዱበት ጤና ተቋም ወደ ሌላ ጤና ተቋም ተልከዉ ነበር?	1. አዎን 2. አይደለም 3. አላስታዉስም	
223	በምን ትራንስፖርት ነበር የሄዱት?	1. በእግር 2. በጋሪ 3. በፈረስ ጀርባ 4. በቃሬዛ 5. በመኪና 6. ሌላ ይጠቀስ ( )	
224	በወልድዎት ቅደም ተከተል መሰረት የመጨረሻዉ ስንተኛ ነበር?	1. አንደኛ 2. ሁለተኛ 3. ሦስተኛ 4. አራተኛ 5. አራተኛ በላይ	

225	**ከመጨረሻዉ በፊት በነበረዉ እርግዝናዎት በወሊድ ጊዜ የጤና ችግር ገጥሞት ነበር?**	**1. አዎን** **2. አይደለም 3 አላስታዉስም**	
226	**ምን ምን ችግሮች ነበሩ የገጠሞት?**	**1. ከመጠን ያለፈ ደም መፍሰስ** **2. የምጥ መዘግየት** **3. እንግዴ ልጅ መዘግየት /ከ1 ሰዓት በላይ/** **4. ሽንትና አይነ ምድር መቆጣጠር አለመቻል** **5. የፅንስ አመጣጥ ትክክለኛ አለመሆን** **6. የሽል ሞት** **7. የሽርት ዉሃ ያለጊዜዉ መፍሰስ** **8. ራስ መሳት** **9. ሌላ ይጠቀስ**	
227	**ከመጨረሻዉ ወሊድዎት በፊት ጤና ማዕከል ወልደዉ ያዉቃሉ?**	**1. አዎን** **2. አይደለም 3 አላስታዉስም**	
228	**ወልደዉ ከሆነ ስንት ጊዜ ነበር የወለዱት?**		

ክፍል ሦስት የእናቶች ፣ ግንዛቤና አመለካከት ጥያቄዎች

301	ከእርግዝና ጋር በተያያዘ ሊመጣ የሚችል የጤና ችገሮች ያዉቃሉ?	1. አዎን 2. አላዉቅም	
302	የሚያዉቁ ከሆነ ችገሮቹ እነማን ናቸዉ ?	1. ከእርግዝና ጋር የተያያዙ በሽታዎች 2. የእናቶች ሞት 3 የህፃናት ሞት 4 ሌላ ይጥቀሱ	
303	በእርግዝና ጊዜ የሚከሰቱ አደገኛ ምልክቶች ያዉቃሉ ?	1. አዎን 2. አላዉቅም	
304	አደገኛ ምልክቶቹ እነማን ናቸዉ ? ከአንድ በላይ ምላሽ ሊሰጥ ይችላል	1. የፊት ወይም እግር እብጠት 2. ከማሕፀን ደም መፍሰስ 3. የፅንስ እንቅስቃሴ መቀነስ/መጥፋት 4. ከፈተኛ ራስ ምታት 5. ከፍተኛ የሆድ ህመም (ቁርጠት) 6. ከመጠን በላይ ክብደት መጨመር 7. የደም ግፊት መጨመር 8. ከፍተኛ የመተንፈስ ችግር 9. ከፈተኛ ትኩሳት 10. ያለ ምጥ የሽርት ዉሃ መፍሰስ 11. የዓይን ብዝታ 12. ሌላ ይጥቀሱ	
305	በመጨረሻዉ እርግዝና ጊዜሽ እነኝህን ምልክቶች አጋጥሞታል ?	1. አዎን 2. አይደለም 3. አላዉቅም /አላስተወስም	
306	ከገጠሞት ምን እርምጃ ወሰዱ ?	1. የጤና ባለሙያ አማከርኩ 2. የልምድ አዋላጅ አማከርኩ 3. ወደ ባህል ህክምና ሄደኩ 4. ምንም እርምጃ አልወሰድኩም 5. ሌላ ይጥቀሱ	
307	አደገኛ የምጥ ምልክቶች ያዉቃሉ?	1. አዎን 2. አላውቅም	
308	የሚያዉቁ ከሆነ ምልክቶቹ እነማን ናቸዉ	1. የምጥ መዘግየት 2. ያለጊዜዉ የሽርት ዉሃ መፍሰስ 3. ደም መፍሰስ 4. እንግዴ ልጅ መዘግየት 5. ትክክል ያልሆነ የጽንስ አመጣጥ 6. የደም ግፊት መጨመር 7. መንቀጥቀጥ እንደሚጥል በሽታ ማድረግ 8. የምጥ ህመም ማቆም	

322	በአቅራቢያ ያሉት ጤና ተቃማት በበቂ መሳሪያዎችና ቁሳቁሶች የተማሉ ናቸዉ	1. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም 9. [illegible] 10. ሌላ ካለ ይጥቀሱ	
309	ቤት መዉለድ ችግሮች አለዉ ብለዉ ያስባሉ	1. አዎን 2. አላስብም	
323	በአቅራቢያ ያሉት ምጤና ተቋማት በበቂ ባለሙያዎች የተማሉ ናቸዉ	1. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም	
310	ችግር አለዉ ካሉ ምን ምን ችግሮችን ያመጣል?	1. የእናቶች ድካም ያስከትላል 2. የፅንስ መታፈን 3. የእናቶች ሞት 4. የፅንስ /ጨቅላ ህፃን ሞት 5. ከአወላጆች በሽታ መተላለፍ 6. ጎጂ ልማዳዊ ድርጊቶች ስለባ መሆን 7. የአራስ ቤት ህመም ይጨመራል 8. ሌላ ይጠቀስ	
311	በጤና ተቋም መዉለድ ጥቅም አለዉ ይላሉ?	1. አዎን 2. አላውቅም	
312	ጥቅም አለዉ ካሉ ምን ምን ጥቅሞች አሉት?	1. ችግሮች በጊዜዉ ይለያሉ 2. ችግሮች በጊዜዉ ይታከማሉ 3. የእናቶች ድካም ይቀንሳል 4. የተሻለ ህፃን እንክብካቤ ይኖራል 5. ጎጂ ልማዳዊ ድርጊቶች አይኖሩም 6. የእናቶች አራስ ቤት ህመም ይቀንሳል 7. ሌላ ይገለፅ	
313	አብዛኝዎችን የምጥ ችግሮች መከላከል እነደሚቻል ያዉቃሉ?	1. አዎን 2. አላዉቅም	
314	አብዛኝዎችን የምጥ ችግሮች /ጉዳቶች መታከም እነደሚቻል ያዉቃሉ?	1. አዎን 2. አላዉቅም	
315	ማንኛዋም እርጉዝ ሴት በወሊድ ምክንያት ለሚመጡ የጤና ችግሮች የተጋለጠች ነች፡፡	1. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም	
316	እኔ እንደማንኛዋም እርጉዝ ሴት በወሊድ ምክንያት ለሚመጡ የጤና ችግሮች የተጋለጥኩ ነኝ፡፡	1. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም	
317	በወሊድ ምክንያት የሚመጡ የጤና ችግሮች በጤናዬ ላይ አስከፊ ውጤትን ሊያስከትሉ ይችላሉ፡፡	1. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም	
318	በወሊድ ምክንያት የሚመጡ የጤና ችግሮች በሚወልደዉ ልጅ ጤና ላይ አስከፊ ውጤትን ሊያስከትሉ ይችላሉ፡፡	1. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም	
319	በወሊድ ወቅት በሰለጠነ የጤና ባለሙያን ተግዞ መወሊድ የተሻለ ጤና እንዲኖረኝ ይረዳኛል፡፡	1. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም	
320	በወሊድ ወቅት በሰለጠነ የጤና ባለሙያ ታግዞ መዉለድ የሚወለደዉ ህፃን የተሻለ ጤና እንዲኖረዉ ይረዳዋል፡፡	1. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም	
321	በጤና ተቃም ያሉ ባለሙያዎች የወሊድ ችግሮችን ለመለየት ለማከምና ከአቅማቸዉ በላይ ከሆነ ለመላክ ብቁ ናቸዉ	1. እስማማለሁ 2. አልስማማም 3. ምንም አስተያየት የለኝም	

የጤና አገልገሎት አጠቃቀምና ዉሳነ ሰጪነት

401	በአቅራቢያዎት የጤና ተቋም አለ?	1. አዎን 2. አይደለም	
402	ይህ ተቋም ምን ያህል ይርቃል?	--------ኪ.ሜ ወይም - ሰአት የእግር ጉዞ	
403	ምን አይነት ተቋም ነዉ ?	1. ጤና ከላ 2. ታዳጊ ጤና ጣቢያ 3. የግል ክሊኒክ 4. ጤና ጣቢያ 5. ሆስፒታል 6. ሌላ ይጠቀስ	
404	የጤና ማዕከሉ የወሊድ አገልግሎት ይሰጣል?	1. አዎን 2. አላውቅም	
405	ዘመናዊ የህክምና ተቋም ተጠቅመዉ ያዉቃሉ ?	1. አዎን 2 አይደለም	
406	ተጠቅመዉ ከሆነ ምን ምን አገልግሎቶችን አግኝተዋል?	1. ቅድሜ ዉለድ ክትትል 2. የወሊድ አገልግሎት 3. የድህረ ወሊድ አገልግሎት 4. ክትባት 5. የቤተሰብ ምጣኔ አገልግሎት 6. የፈዉስ ህክምና አገልግሎት 7. ሌላ ይጠቀስ	
407	ተጠቅመዉ የማያውቁ ከሆነ ለምን ነበር ያልተጠቀሙት?	1. በጣም ስለራቀኝ 2. በጣም ስላልታመምኩ 3. በጣም ዉድ ስለሆነ 4. በባህል ስለምከለከል 5. የባህል ሀኪሞች ስላሉ 6. የቤት ዉስጥ ስራዎች ስለበዛብኝ 7. ሌላ ይጠቀስ	

412	ለመክፈል አቅም ነበረዎት?	1 አዎን 2 አልነበረኝም	
408	ጤና ማዕከል ወልደዉ ያዉቃሉ?	1. አዎን 2. አላውቅም	
413	የጤና አገልግሎት አጠቃቀምትን የሚወስነዉ ማን ነዉ?	1 ራሴ 2 ባለቤቴ 3 ዘመዶቼ 4 የሃይማኖት መሪ 5 ሌላ	
409	የወሊድ አገልግሎቱን አግኝተዉ ከሆነ እንዴት ነበር ያገኙት?	1. በነፃ 2. በክፍያ 3 አላስታዉስም	
414	[illegible] የሰለጠነ ጤና ባለሙያ እንዲያዋልድዎት የሚወስነው ማን ነው?	1 ራሴ 2 ባለቤቴ 3 ዘመዶቼ 4 የሃይማኖት መሪ 5 ሌላ	
410	በክፍያ ከሆነ ስንት ብር ከፈሉ?	1......... ብር	
411	በክፍያዉ ላይ ምን አስተያየት አለዎት?	1. ዉድ ነዉ 2. መካከለኛ ነዉ 3. ርካሽ ነዉ 4. አስተያየት የለኝም	
415	በወሊድ ወቅት የት መውለድ እንዳለብዎት ወሳኔውን የሚሰጠዉ ማነው?	1. እኔው ራሴ 2 ባለቤቴ 3 ዘመዶቼ 4 የሃይማኖት መሪ	

		5. ሌሎች ይጥቀሱ	

E. Annex 5 Interview Guide questions for key informants

1. How do you see the status of maternal health service in your area(Zone, wereda)
2. Causes of maternal morbidity and mortality
    - Service organization and utilization
    - Utilization of ANC, Delivery, PNC and FP? Which service/es are under utilized? Why?
    - How many facilities rendering the services?
    - Are they accessible to the users; are they user friendly, why?

2. How do you see the status of delivery care (child birth) at health institutions (HC, GHC, HP and at community)?

- Equipments and supplies,Infrastructures,Facilities
- Staffing, skill
- Quality of care
- Attendants at community (TBA, TTBAs)
- Utilization pattern

3. What do you understand by;

- Emergency Obstetric Care? Basic Vs comprehensive
- Skilled attendance Vs attendant at birth
- Safe delivery service? Any training provided to health care providers? No. of trainees?
- Status of service provision at facilities

4. In your opinion what are the most important factors that affect delivery/Emergency obstetric care (EmOC) provision?

- Staffing(skill, behavior,comitement)
- Equipment, supplies, infrastructure (drug, electricity, water…)
- Quality of care, technical assistance, supervision?
- Transport(ambulance)
- Service fee, User unable to afford?

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

- Human resource development
- Health institution construction and equipping
- Community awareness creation , collaboration with TBAs, TTBAs, HEWs

6. Where do women in your area prefer to deliver?

- Home, health facility, Why? Whom they prefer for attendance?

7. How do you promote safe delivery service utilization in your area?

- Community mobilization, use of HEWs, TBAs and Service expansion,

Annex 6 Observation Check list for equipments, facilities and supplies

S.no.	Item	Available	Comments
	Separate delivery room		
	Separate Waiting room		
	Delivery bed		
	Sufficient light		
	Functional water supply		
	Beds for mothers and neonate		
	Person in charge of delivery service		
	Delivery register book		
	Equipments		
	Sterilizers		
	Sphygmomanometers		
	Stethoscope		
	Weighing scales(infant)		
	Fethoscope		
	Clinical thermometer		
	Vacuum extractor		
	Obstetric forceps		
	Protective clothes		
	Apron		
	Drapes		
	Gown		
	Rubber sheet		
	Blanket		
	Supplies		
	Cord ties		
	Gloves		
	Plastic sheet		
	Gauze swabs		
	Cotton		
	Disposable syringes and needles		
	Disinfectants		
	Minimum equipments for delivery		
	Scissors		
	Forceps		
	Bag and mask for neonatal resuscitation		
	Mucus extractor		
	Basic equipments for uterine evacuation		

	Essential drugs		
	Antibiotics(oral and injectables		
	Antimalaria(Quinine.Coartem etc)		
	Antihypertensive(hydralazine Aldomete etc)		
	Anticonvulsants(Diazepam, others)		
	Means of transport in case of obstetric emergencies		

Annex 7 Checklists for review of records (ANC, delivery and referral registration books)

S.no	Item	NO. per months(Jan 2007 to Dec 2007)											
1	ANC attendees												
2	Labor admitted												
3	Labor attended												
	SVD												
	Instrumental												
	Episiotomies												
	Still birth												
	Partograph filled												
4	Delivery attendants												
	HO												
	Midwife nurse												
	Other nurses												
	Other heath professionals												
5	Labor complications												
	Prolonged labor												
	APH												
	PPH												
	Retained placenta												

	Mal-presentations												
	Other complications												
6	Referred labor												
7	Reasons for referral												
	Prolonged labor												
	APH												
	PPH												
	Retained placenta												
	Mal-presentations												
	Other complications												

Annex 8 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 have been fully acknowledged.

Name: Abyot Asres

Signature:_____

Date: July, 2008

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

Name: Dr. Gail Davey (MD, MSC, Associate Professor)

Signature: _____

Date: _____