ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

SOCIO-ECONOMIC AND DEMOGRAPHIC DETERMINANTS OF MATERNAL HEALTH CARE SERVICE UTILIZATION IN BOLOSO SORE WOREDA, WOLAITA ZONE OF SNNPR, ETHIOPIA.

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This is to certify that the thesis prepared by **Woldesenbet Asrat** entitled: "***Socio-economic and Demographic Determinants of Maternal Health Care Service Utilization in Boloso Sore Woreda, Wolaita Zone of SNNPR, Ethiopia***" and Submitted to Partial Fulfillment of the requirements for the Degree of Master of Science (Population Studies) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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ABSTRACT

Each year, more than 358,000 women worldwide die from childbirth related complications. Utilization of maternal health care services could save some of the unnecessary severe complications and death among women during pregnancy, delivery and after child birth. Numerous factors contributed to maternal mortality such as characteristics of the women and the husband in which she is living, the type of illness that she encounters as well as effectiveness of the health care system available in the surrounding. The purpose of this study is to investigate the social, economic and demographic factors that affect women's use of maternal health care services in Bolososore woreda, Wolaita zone of SNNPR. The survey was cross-sectional in design and conducted from January 20 to February 5, 2012. A total of 633 women aged 15-49 who have had at least one live birth in the five years preceding the survey were selected using systematic random sampling. Bivariate and multivariate analytical techniques are used assess the relationship between social, economic and demographic factors and the maternal health care service utilization.

The result of the study showed that about 59%, 93% and 81% of women did not receive antenatal care (ANC), delivery care (DC) and skilled assistance during delivery, respectively. Skill of HEWs in respondent opinion, women's work status, women's and husbands' education and Women's exposure to media had a statically significant relationship with the utilization of antenatal care, modern delivery care and skilled assistance during delivery.

Except Birth order other socio-economic and demographic variables are significantly associated with all forms of maternal health care. The results of logistic regression indicate that Skill of HEWs in respondent opinion, women's work status, women's and husband's education and Women's exposure to media remain the most significant variables affecting all forms of antenatal and delivery care utilization.

Finding of the study, in general, showed that, improving the quality/skill of HEWs in respondent opinion, providing long term education of women and their husbands' as well as mass media campaigns promoting health education would enhance low utilization level and coverage of maternal health care service in the area.

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LIST OF ACRONYMS

ANC	Ante Natal Care
ASFR	Age Specific Fertility Rate
CEB	Children Ever Born
CSA	Central Statistics Agency
EDHS	Ethiopia Demographic and Health Survey
FGD	Focus Group Discussion
HEP	Health extension program
HEWs	Health Extension Workers
HF	Health Facility
MHC	Maternal Health Care
MHCS	Maternal health care service
MM	Maternal Mortality
MMR	Maternal Mortality Ratios
MOFED	Ministry Of Finance and Economic Development
MOH	Ministry Of Health
NAPHP	National Association for Public Health Policy
PNC	Post Natal Care
RC	Reference Category
SBA	Skilled Birth Attendant
SSA	Sub-Saharan Africa
TTI	Tetanus Toxoid Injection
UNICEF	United Nations Children Fund
WHO	World Health Organization

CHAPTER ONE

1.1 Background

Maternal health has emerged as global priority because of a great gap in the status of mother's well being between the rich and the poor countries. According to WHO (2008), maternal health refers to the health of women during pregnancy, childbirth and the postpartum period. In rich nations, where women have access to basic health care, giving birth is a positive and fulfilling experience. On the other hand, for many women in poor countries it is associated with suffering, ill health and even death (WHO et al. 2010).

All pregnant women, whether their pregnancies are complicated or not, need good quality maternal health services during pregnancy, delivery and in the postpartum period to prevent death and illness for both mothers and their infants. The most recent estimates undertaken by WHO et al. (2010) show that 358,000 maternal deaths arise from complication of pregnancy, childbirth, and unsafe abortion throughout their world in 2008, with 99 percent of maternal deaths occurring in developing countries of which 87 percent of them are taking place in sub-Saharan Africa and South Asia.

The evidence shows that high levels of maternal mortality and morbidity, neonatal and child mortality rates are associated with inadequate and poor-quality maternal health care, including antenatal care, skilled attendance at birth and postnatal care (Carroli, Rooney, and Villar 2001; Li et al. 1996; WHO 1999). That is one of the reasons why attention shall be given to the socio-economic and demographic determinants in the sphere of reproductive health besides making efforts to define criteria and develop methodologies to assess the determinants of maternal health services.

Ethiopia is second most populated country in sub-Saharan Africa with a total population of 88 Million, in 2011CSA projection (CSA, 2011). The female population in the reproductive age group (15-49) is 23.9 %(CSA, 2008) Maternal health care service (MHCS) is considered as cornerstone for safe motherhood. The importance of antenatal care, delivery care and postnatal care has well documented as effective tools for screening, preventing, and treating diseases and pregnancy related complication.

Moreover, many lives of woman could be saved if they had access to basic health care and emergency obstetric care for women who develop complications (UNICEF, 2007)

Although implementing and assuring utilization of effective maternity care for women in the developing world is not an easy task, the importance of MHCS in reducing maternal mortality (MM) and morbidity has received a significant recognition. For the mere reason that most childbearing women are poor and live under harsh conditions the health care service utilization is extremely low in Ethiopia.. The 2011 EDHS results show that only 34 percent of women who gave birth in the five years preceding the survey had received Antenatal Care (ANC) from a trained health professional at least once for their last birth. Antenatal care from a trained health professional has shown slight change: increased only by 6 percent since the 2005 EDHS estimate (28 percent). Ten percent of births were delivered in a health facility, a doubling of the level reported in the 2005 EDHS (5 percent), and postnatal care (PNC) 5.8 percent in 2005 (CSA and ICF International, 2012).

Despite low utilization of health care services, there is considerable variation across different demographic and socio-economic variables. The explanation of this diversity may be complex. Utilization of MHCS is affected by a multitude of factors. An attempt is made in this study to understand the factors that determine women's utilization of maternal health care services.

1.2. Statement of the problem

Each year, millions of women, newborns, and children die from preventable causes. While the interventions that could save their lives are widely known, they are often not available to those most in need. A look at the statistics worldwide shows that each year more than 60 million women deliver at home without skilled care (Rudolf Knippenberg et al, 2005).

Maternal and parental health has emerged as the most important issue that determines global and national wellbeing. This is because every individual, family and community is at some point intimately involved in pregnancy and the success of childbirth (WHO,

2005). Despite the honor bestowed on womanhood and the appreciation of the birth of a new born baby, pregnancy and child birth is still considered a perilous journey. In the less developed world, particularly in Sub-Saharan African countries, availability and utilization of MHCS is low. At least 35% of woman in developing countries still receive no ANC, almost 50% give birth without a skilled attendant and 70% receive no PNC. In contrast, maternal health care (MHC) is nearly universal in developed countries (WHO, 1998).

In Ethiopia, although maternal deaths could be prevented through proper and timely care seeking and adequate management, maternal mortality is a serious public health concern. The unnecessary MM reflects a significant breakdown of basic services, and in particular of primary health care in the country. Coverage and utilization of these interventions are correspondingly low to achievement of global MDGs 5 (WHO, UNICEF, UNFPA, 2007). Unfortunately, among pregnant women, 66 percent did not take at least one antenatal care, 90 percent delivered without the assistance of health professionals and the maternal mortality ratios (MMR) in Ethiopia was 676 in 2011 (CSA and ORC Macro, 2012).

Research has shown that Ethiopia ranks lowest in ANC coverage among other Sub-Saharan African countries (SSAC). In Rwanda, Malawi, Ghana, Lesotho, Kenya and Senegal, about nine in ten of the women received ANC service from the health professional. However, only three in ten of Ethiopian women received similar service. Ethiopia also ranks low in terms of delivery assistance from a health professional and delivery in health institution (Macro International Inc., 2007).

The Federal Government of Ethiopia in recognition of the need to strengthen and improve safe motherhood and child health programmes to reduce morbidity and mortality, has formulated several policies and strategic frameworks to accelerate the integration of reproductive health/family planning concerns into sectoral programmes and activities. Also Ethiopian Government is a strong advocate for improved maternal health as evidenced by its commitment to the Millennium Development Goals (MDGs 5). It is also committed to improvement of maternal health as a primary goal of the Health Sector

Development Program (HSDP III). The key vehicles to achieve these goals are the Health Extension Program (HEP), introduced in 2003, plus referral support.

Despite the fact that maternal health service utilization is essential for further improvement of maternal health and researchers have devoted considerable attention to the importance of accessibility and utilization of MHC services in Ethiopia, there was no adequate study that shows the socio-economic and demographic determinants of utilization of maternal health care services utilization.

Therefore, these study emphasis on finding out the reasons that determine health care utilization of service. On the other hand, irrespective of the great effort on increasing the availability of maternal health services and encouraging women to obtain adequate health care during pregnancy and delivery, the MMR has not yet dropped appreciably and the strategies so far put forward have not brought the desired results. Presumably, there are socio-economic and demographic factors that played a role in the utilization of maternal health care services.

1.3 Rationale and Significance of the Study

Maternal mortality is an important public health problem generally in developing countries where uptake of maternity care is very low. The following facts enforced the study to focus on maternal health care service in SNNPR, woliata Zone, in Bolososore Woreda. First the region in general and the woreda in particular was the least in utilizing MHC care services compared to other region of Ethiopia, Second; the researcher knew the presence of different harmful traditional practices and believes (which include reliance on TBAs as opposed to health profession)in the region and its impact on MHC utilization in the study area. And it also seems that no enough studies have been done on the issues subsumed in the study area under the title of socio-economic and demographic determinants of MHC utilization.

The studies have identified the socio-economic and demographic barriers to the utilization of MHCS in the study area and narrow the existing gap in knowledge. If effort is made to address the factors hindering the utilization of MHC services, the society,

particularly women and children will considerably benefit and improve their health status and wellbeing. The findings of this study will also help governmental and non-governmental organizations in planning and implementing programs aimed at reducing maternal morbidity and mortality in Ethiopia generally and in the study area particularly. Since the demographic and socio-economic factors were found to have strong impact on MHC service utilization in the region, this study could serve as an insight for the modification of plans and policies for future development regarding MHC. On top of this, the study can serve as a spring board for those who are interested to extend it for further in depth investigation.

1.4 Outline of the Research

This research is presented in seven chapters, including introduction chapter and a concluding chapter. Chapter one highlights major issue relating to maternal health at a global level and Ethiopia in particular. Chapter Two contains of literature review relating to factors associated with the utilization of maternal health care services. The justification and objectives of the study are also described. In addition, it covers analytical framework and summarizes the methodological issues of the present study. Chapter Three Data source and methodology chapter Four and chapter Five give the results of bivariate and multivariate analysis. Finally, Dissociations and Summery, conclusions and recommendations of the study are presented in chapter Six and Seven Respectively.

CHAPTER TWO

2.1 Literature Review

This chapter presents a critical review of the literature on determinants of maternal health care utilization. Relevant studies in both developing and developed countries are reviewed with particularly emphasize on the findings and methodological issue in developing countries.

Before discussing the factors influencing maternal health care utilization, this chapter describes: the importance of antenatal care, the place of deliveries and the trend of deliveries assisted by skilled birth attendants. Review of the frameworks from existed research is then depicted, followed by construction of the framework that will be used in explaining the determinants of maternal health care service utilization in study area. The framework covers all possible factors influencing maternal health care utilization and specifies the mechanism through they operate. Socio-economic variables, such as education, occupation, women's status, women's exposure to media and role of health extension worker rare considered. Aspects' relating to demographic variables, such as age of respondent, age of husband's, travel distance and parity, and are then discussed.

2.1.1 Maternal Health Care Utilization

The significance of MHCS in reducing maternal and infant morbidity and mortality has received increasing recognition since the ICPD in Cairo (UNFPA 2004). According to the ICPD Program of Action, maternal health services should include education on safe motherhood; effective and focused prenatal care; maternal nutrition programs; adequate delivery assistance that avoids excessive recourse to caesarian sections and provides for obstetric emergency; referral services for pregnancy, childbirth and abortion complications; post-natal care and family planning (UNFPA 2004). Maternal health care is analyzed under three categories namely the use of ANC from a trained provider, place of delivery care and the use of trained delivery assistance.

2.1.2 Antenatal Care

Several studies have shown that there exists an association between the use of ANC and PNC positive maternal outcome. For example, a study in Vietnam, found that antenatal care reduced MM by improved nutrition and screening for high risk pregnancies (Swenson et. al 1993). In Zaire, antenatal care was found to reduce MM 17-fold. The main impact has been a reduction in severe anaemia, cases of obstructed labour, and treatment of medical conditions (Royal College of Obstetricians and Gynecologists 1979). In addition, the study by Coria-Soto et al, found that inadequate number of visits was associated with 63% higher risk of intra uterine growth retardation. Work from Tanzania stated that 81% of risk factors could be identified in the antenatal period (Essex & Everett 1977). The risk factors in here are associated with the women's medical obstetrical and social history or circumstances and those arising during the antenatal period.

Although ANC alone cannot prevent all obstetric emergencies, the information provided by antenatal service provider is important for the successful management of pregnancies and the subsequent wellbeing of the child. Antenatal care presents an opportunity to evaluate the mother's overall condition, diagnose and treat infections, screen for anaemia and HIV/AIDS and prevent low birth weight (UNFPA 2004). Other potential benefits of ANC care are counseling on nutrition and healthy pregnancy/delivery behavior; provide tetanus immunization, malaria prophylaxis, iron and folic acid tablets and helping women to select a trained birth attendant or institution to deliver their babies in. Approximately, more than half of all women in developing countries receive at least four ANC visits during pregnancy (UNFPA 2004).

The Government of Ethiopia is committed to achieving Millennium Development Goal 5 (MDG5), to improve maternal health, with a target of reducing the maternal mortality ratio (MMR) by three-quarters over the period 1990 to 2015. Accordingly, the Federal Ministry of Health (FMOH) has applied multi-pronged approaches to reducing maternal and newborn morbidity and mortality. Improving access to and strengthening facility-

based maternal and newborn services is one such approach, and is also a Health Sector Development Plan (HSDP) strategic objective.

The ANC coverage in Ethiopia was, 34 percent of pregnant mothers who gave birth in the five years preceding the survey received antenatal care from a skilled provider, that is, from a doctor, nurse, or midwife, for their most recent birth 28 percent from a nurse or midwife and 5 percent from a doctor. Another 9 percent of women received ANC from a health extension worker (HEW) (CSA and ORC Macro, 2012).

A study conducted in Beni shangul Gumuz region of Ethiopia showed that lack of awareness 268(51.4%) and absence of health problems during pregnancy 213(40.9%) were the main reasons mentioned for not attending the service. Place of residence, educational status, husband's educational status, possessing radio, monthly income, and knowledge about antenatal care were found to have a statistically significant association with antenatal care service utilization (Gurmesa, 2009). However, there are a number of factors in developing countries that have the potential to be a hindrance to these aspects of ANC from being successful.

2.1.3 Place of Delivery

Unlike the use of antenatal care, the place of delivery, if adequate facilities are provided effectively, has consistently been found to be associated with reduction of MM (Thaddeus & Maine, 1994). The conditions for facilities at birth delivery to be effective are: first, delivery should be assisted by trained health workers who are able to identify the signs of complications and act appropriately when a problem occurs. Second, Referral facilities should be available to deal with obstetric emergencies once they have been identified, and on arrival at the referral facility patients should be observed promptly and appropriate decisions made to avoid further complications or even death (Thaddeus & Maine 1994). Moreover, there needs to be a transport system to get women to the facility quickly in order for the service to be effective. However in developing countries, there are a number of factors that can restrain the positive effect of delivery (Griffiths & Stephenson 2001).

In Sub-Sharan Africa, delivery care is far from adequate (Magadi et.al 2003). The situation in Ethiopia is more disturbing, since percentage of women delivered with the help of health professionals is among the least in Sub-Sharan Africa (CSA and ORC Macro, 2005; and Macro International Inc., 2007). Considering the seriousness of problem, the government of Ethiopia well understood constriction of primary health facility at the lower administrative unit can at least minimize the situation (collier, et. al, 2002)

An important component of efforts to reduce health risks to mothers and children is increasing the proportion of babies that are delivered in health facilities. Ten percent of births in Ethiopia are delivered at a health facility 9 percent in a public facility and 1 percent in a private facility. Nine women in every ten deliver at home. The percentage of births delivered in health facility ranges from less than 10 percent in SNNP, Affar, Oromiya, Somalia, and Benishangul-Gumuz regions to 82 percent in Addis Ababa(CSA and ORC Macro, 2012).

2.1.4 Assistance during Delivery

A vital contribution could be made if attendance at an antenatal service influenced women to select a trained birth attendant. The majority of maternal deaths occur due to unexpected complications, which would require the availability of emergency obstetric care. The presence of skilled birth attendant for all births is the only way to ensure all those with pregnancy complication to be referred to emergency obstetric care. Skilled birth attendants during labour, delivery and early post partum period could reduce an estimated 16 to 33 percent of deaths due to obstructed labour, haemorrhage, sepsis and eclampsia (UNFPA 2004). A skilled birth attendant is a professionally trained health worker, usually a doctor, midwife or nurse, with the skill to manage a normal labour and delivery, recognize complications early on and perform any essential interventions, start treatment and supervise the referral of mother and baby to the next level of care if necessary (UNFPA 2004).

In developing countries, many women are still assisted in delivery either by traditional births attendants, relatives or their deliver by themselves. According to a recent report of

UNFPA in 2004, only slightly more than half of all deliveries (56%) are assisted by skilled personnel (AbouZahr & Wardlaw 2001, p. 564). The lowest levels skilled birth attendants at delivery in developing countries are in South Asia (29%) and sub-Saharan Africa (37%). The highest levels of use of skilled birth attendance are in Latin America and the Caribbean (83%) and the Central and Eastern Europe/ Commonwealth of Independent States Regions (94%) (AbouZahr & Wardlaw 2001, p. 564). In Ethiopia 10 percent of delivery assisted by skill birth attendant (CSA and ORC Marco, 2012)

2.2. Socio-Economic and Demographic Determinants of MHC Utilization

The millennium Development Goals (MDGs) focused on improving maternal health, with target of reducing the maternal mortality ratio by three quarters between 1990 and 2015, average annual redaction of 5.4 percent (Wagstaff et al., 2004). Progress towards these goals however, is surprisingly low and insufficient, especially in Sub- Shara African and Southest Asia(Pitchforth et al., 2006). Identification of the factors related to low utilization of maternity care services is pivotly in formulating evidence based policy so that it will reduce maternal mortality rate fast. Different factors affect utilization of MHC services. There are:

2.2.1 Women's Education

In developing countries, many women are still assisted in delivery either by traditional births attendants (TBA), relatives or they deliver by themselves. According to a recent report of UNFPA in 2004 (p.53), only slightly more than half of all deliveries (56%) are assisted by skilled personnel. The lowest level of skilled birth attendants at delivery in developing countries are in South Asia (29%) and SSA (37%). The highest levels of use of skilled birth attendance are in Latin America and the Caribbean (83%) and the Central and Eastern Europe/ Commonwealth of Independent States Regions (94%) (AbouZahr and Wardlaw 2001).

Amongst the maternal characteristics, education of women has been found to have the strongest association with the use of maternal and child health care services. Education is one of the powerful tools to empower women and different studies verify the positive

relationship between mother's education and utilization of MHC services. Higher educational levels improved the ANC attendance and were positively associated with the likelihood of using safe delivery care (Bloom, 2001; Falkingham, 2003; Govindasamy et al., 1997; Jimoh, 2003). For example, a study in India documented the strong consistent and positive relation between MHC service utilization and mother's education; only half of births to illiterate women received ANC compared with 79 percent of births to literate women with less than middle school education and more than 90 percent of births to women with at least middle school education. Similar differentials are observed for TTI and delivery care services (Govindasamy et al., 1997).

Low education is associated with low exposure to maternal health care. Mothers having at least some schooling are more likely to use maternity service than no educated once. (Katahoire 2004). Educated women are more likely to receive ANC and the likelihood of their using ANC is associated with their level of education. Educated women are also more likely to report four or more visits. In most countries, the greatest proportionate difference occurs between women with no education and those with primary education (WHO, 2003).

One study conducted in Urban Sub-Saharan Africa on inequality of maternal health care demonstrates that the probability of home delivery declines with increasing maternal education and age, but increases with increasing parity. On average, the urban poor are more likely to have a home delivery than the urban non-poor, but less likely to do so than the rural residents. The country-level variances show that there is a significant variation in delivery care and in residential inequalities in delivery care across countries of sub-Saharan Africa (Monica, et al, 2003).

Study made in Yem special woreda, SNNPRS found that educational status of women, residence and age at first pregnancy, living less than 60 minutes walk from health facility, and planned last pregnancy are significantly associated with ANC utilization in the area(Bahilu, et al., 2009

There is also evidence indicating that education alone may not be sufficient to improve health-care-seeking behavior. For example, Kyomuhendo (2003) found that despite a

favorable and enabling policy environment, universal primary education and decentralization of health services, there has not been an increase in the utilization of emergency obstetric care by women in Uganda, because women's care-seeking behavior was not the result of individual preferences or choices but it was conditioned by community poverty, norms and tradition.Women low educated level and their limited decision making power in their maternal health care have made them more vulnerable to the infection and pregnancy complications (UNICEF, 2001)

2.2.2 Husband's Education

Husband's education also reflects tastes and preferences for health-care utilization. The husband's attitudes towards modern care could, for example, influence the wife's decision of whether or not to seek modern health-care services. Caldwell has suggested that men with higher educational attainment may play a more important role in maternal health care decisions than men with less schooling (Caldwell 1986).

A study in India reported that matriculate education has the largest and statistically significant impact on the probability of maternal health care use. It increases the probability of pre and post natal care use by 10 percent and 8 percent respectively and the probability of the use of trained help at the time of delivery by 7 percent (Shariff and Singh 2002).

2.2.3 Women's Exposure to Mass Media

Existing research on health outcomes in developing countries like Ethiopia has shown the important role of the media in disseminating information on health related issues. Three sources of information are usually used: radio, television and newspapers and magazines.

Women's exposure to information through the radio, television and newspaper significantly increased the utilization rates for all services in India (Shariff and Singh 2002). There is a 5 percent increase in the probability of the use of prenatal care for a woman who frequently listens to the radio compared to a woman who does not. Moreover, a study by Obermeyer (1993) in Morocco and Tunisia indicated that watching

television weekly is associated with an increase in the likelihood of both prenatal care and hospital delivery.

2.2.4 Women's Autonomy

Autonomy has been defined as the capacity to manipulate one's personal environment through control over resources and information in order to make decisions about one's own concerns or about close family members. Women's autonomy thus can be conceptualized as their ability to determine events in their lives, even though men and other women may be opposed to their wishes (Bloom et.al 2001). The influence of women's autonomy on the use of health care appears to be as important as other known determinants such as education. Dimensions of autonomy such as freedom of movement, decision making power and control over finance were found to exert strong influence over service use and service choice in South Asian setting (Bloom et. al 1998).

Women's autonomy at the household level has strong direct impact on families. Here is where decisions are made about the allocation of resources for food, health care, schooling and other family necessities. When women are locked out of decisions regarding household income and other resources, they are more likely to receive less food, and to be denied essential health services and education. When women share equally in household decisions, they tend to provide more care adequately and fairly for their children.

2.2.5. Women's Employment Status

Dependence on men for economic survival has been a principal barrier to women's control over their reproductive behavior in developing countries. Empowering women with more economic participation and control in their households and communities might be the key to their achieving control over their own reproductive health. Employment can increase women's economic autonomy and reproductive health status because it raises awareness and provides new ideas, behavior and opportunities through interaction with other people outside the home and community (Sharma et.al, 2007).

One study in Kenya (Magadi et. al 2000) reported that the ANC visits tend to start earlier for women in paid employment. They are likely to have greater knowledge about pregnancy and childbirth due to freedom of movement outside household. They also tend to seek information on services available for pregnancy care during work.

However, employment may not necessarily be associated with greater use of MHC, like in Nepal (Sharma et.al 2007), because non-working women may be better off than working women. In the context of developing countries, women's work is largely poverty induced and is likely to have a negative impact on utilization of maternal and child health services.

2.2.6. Maternal Age

Since older and younger women have different experience and influence of maternal health care, .Commonly, younger women are more likely to utilize maternal health care facilities than older women, as they are likely to have greater exposure and knowledge to modern health care, also more access to education. Older women, on the other hand, have accumulated knowledge on maternal health care and therefore likely to have more confidence about pregnancy and childbirth or they may be less comfortable with modern medicine and more reluctant to take advantage of available services; consequently, they may give less importance to obtain institutional care (Raghupathy, 1996). In contrast, experience and skills acquired by older women should have a positive influence on the use of health services.

The study in Nepal (Sarma et.al 2007) gave result that women over the age 35 are less likely to utilize prenatal care but more likely to utilize delivery and PNC. However, a study in Bangladesh indicated that type of assistance utilized at delivery does not differ significantly with the age of the mother (Paul & Rumsey, 2002). In Philippines, older women were found to have fewer traditional visits both in urban and rural areas and to increase their private visits in urban areas (Wong et al., 1987).

2.2.7. Birth Order

With respect to birth order, several studies show a strong negative association between birth order and the use of maternal health care services. One study in Turkey (Celik & Hotchkiss 2000) showed that women who delivered their first child were found to be significantly more likely to use prenatal care and trained assistance during the birth than women in the higher order. Another study in urban areas in Philippines showed that the probability of choosing as most frequent either public or private modern health care facility instead of traditional care decreased as the number of children aged zero to six years old increased (Wong et al., 1987).

There are perhaps, three possible explanations for this. Firstly, women with first child pregnancy were more cautious about their pregnancies and therefore sought out trained professional assistance. Secondly, as the number of children ever born increases, women may tend to believe that modern health care is not as necessary and tend to rely more on their accumulated past experiences and knowledge. Thirdly, a higher birth order suggests a greater family size and hence lower resources (both time and money) available to seek formal healthcare.

The number of living children determines women's utilization of MHC services. The more children at home, the more limited the women's mobility. This is especially problematic when clinics discourage women from bringing small children along to the exam because the children must remain unattended in the waiting area. Among women with more surviving children at the time of their pregnancy predicted antenatal care scores were lower than among others (Bloom et al., 2001). Thus women having more living children are less likely to attend MHC services. Higher parity women or women with more living children are mostly those who have small birth intervals so as birth interval also have related influence on utilization of MHC services.

2.2.8. Distance from health facility

Distance from health facility is also an important factor in the utilization of health services. According to a study in Kenya, the most significant predictor for choosing home

delivery (an informal delivery setting) is the distance from the household to the nearest maternity bed (Hodgkin D, 1996). A study in Nepal has also reported distance of more than one hour to the maternity hospital as being statistically significantly associated (OR = 7.9) with an increased risk of home delivery (Rajendra R and et.al. 2004).

2.3. Health system and Health Extension Workers

The overall health service coverage has improved throughout the years. However, this varies substantially among the regions depending on their topographic and demographic characteristics. Geographical distance from a health facility and socio-economic factors are the major obstacles for people to get access to health care.

Despite some improvements, the country faces major problems such as: shortage of health care professionals, limited resources and unequipped health facilities and lack of infrastructures. The ratio between service-providers to the population continues to be unacceptably low. The ratio of doctors per population is approximately 1:42706 and that of nurses per population was 1:4207, midwife per reproductive age women 1: 20,000, and health 11 extension worker to population 1:2,500 (FMoH, 2007).

In order to ensure equitable access to health services, the country is implementing a community based programme under the name of Health Extension Program (HEP). This innovative programme is aimed at creating a healthy environment and living by making available community based essential health services at the grassroots level. The HEP is designed to give services at 'tabia' (sub district) level covering sixteen components. It is aimed at achieving significant basic health care coverage in the country, through the provision of a staffed health post to serve for about 5000 people. Every health post is staffed by two female Health Extension Workers (HEWs), who are high school graduates with an extra one year training course. Being the HEW female, mothers feel more comfortable to seek health services, mainly reproductive health and other maternal health care services (FMoH, 2005).

HEWs have their own roles and responsibilities. They go house to house to train, demonstrate, and educate families to create role models in line with heath extension

program and to disseminate it for the community. These activities can facilitate and increase mothers need for use of family planning, antenatal care and institutional delivery, prevention of malaria and HIV/AIDS, and prevention of harmful traditional practices which has a subsequent effects on reducing maternal mortality. The HEWs provide services in the HP and at the community.

Under the family planning services they distribute oral contraceptive pills, injectable contraceptives and condoms. Supervision of Community health workers (TBAS, CBRHAS) who are participating in the distribution of oral contraceptive pills, condom and educating families about child spacing are also the duties of the HEWs (FMoH, 2005).

Antenatal care is another main activity for the HEWs. This is carried out through providing health education on birth preparedness, early detection of abnormal pregnancies, educating mothers about prevention of bleeding, danger signs, prevention of infection and safe delivery, immunization, women's nutrition, early transportation (referral), prevention of HIV/AIDS, iron supplementation and use of insect side treated nets during antenatal care service. Health extension workers are in addition responsible for providing safe and clean delivery, managing hemorrhage, preventing infections, identifying problems and complications early and making referrals to appropriate levels of health service. Moreover, they provide postnatal care service and teach mothers on how to care for herself and her baby, and to enable prevention of complications that arise during delivery. The health extension workers give supportive supervision to TBAs and community health workers too (FMoH, 2005).

TBAs play an important role in assisting home deliveries since they are still accepted by the community. TBAs are responsible to mobilize the community and to disseminate information regarding importance of maternal health care service. They encourage women to use maternal health care services, teaching communities on disease prevention and promotion. Currently however the government has not been providing refreshment trainings and other motivation supports to encourage TBAs (FMoH, 2005).

Roles and responsibilities of HEWs

Roles and responsibilities of Health extension workers

1. Health Post Administration
2. Outreach services and home visits
3. Provide immunization, family planning, Antenatal, delivery and postnatal care services
4. Trained model households on components of HEP and provide health education
5. Provide referrals to Health Centers and follow up on referrals
6. Supervise and support Community Health workers
7. Provide reports to the health centers (Woreda Health Offices).

Community mobilization, Health the training and deployment of the health extension workers have been progressing according to plan. Some 24 534 workers gave been trained and deployed, representing 82% of the target (FMoH, 2005). More recently, the introduction of HEWs from the local communities has shown an early indication of increasing demand for health services and heavier workloads for HEWs is the most challenge of Heath Extension Workers (FMoH, 2010).

In this study, MHCS are observed under three categories: ANC, place of delivery, and assistance during delivery. Women's education, husband's education, women's exposure to media, women's autonomy, women's work status, husband's occupation, age, Skill/quality of HEWs in respondent opinion and birth order are the independent variables, assumed to have positive or negative association with the utilization of MHCS.

2.4. Conceptual Frameworks

Based on an extensive review of the anthropological and socio-medical literature of health care, Kroeger (1983), proposed that determinants of utilization in developing countries could be grouped under three broad headings: **(i)** characteristics of the subject (predisposing factors) including age, sex, marital status, household composition and size, ethnic group affiliation, occupation, assets and education; (ii) characteristics of illness, expected benefits from treatment and beliefs about disease causation; and (iii) characteristics of the health care system, including accessibility, acceptability, cost and quality of care.

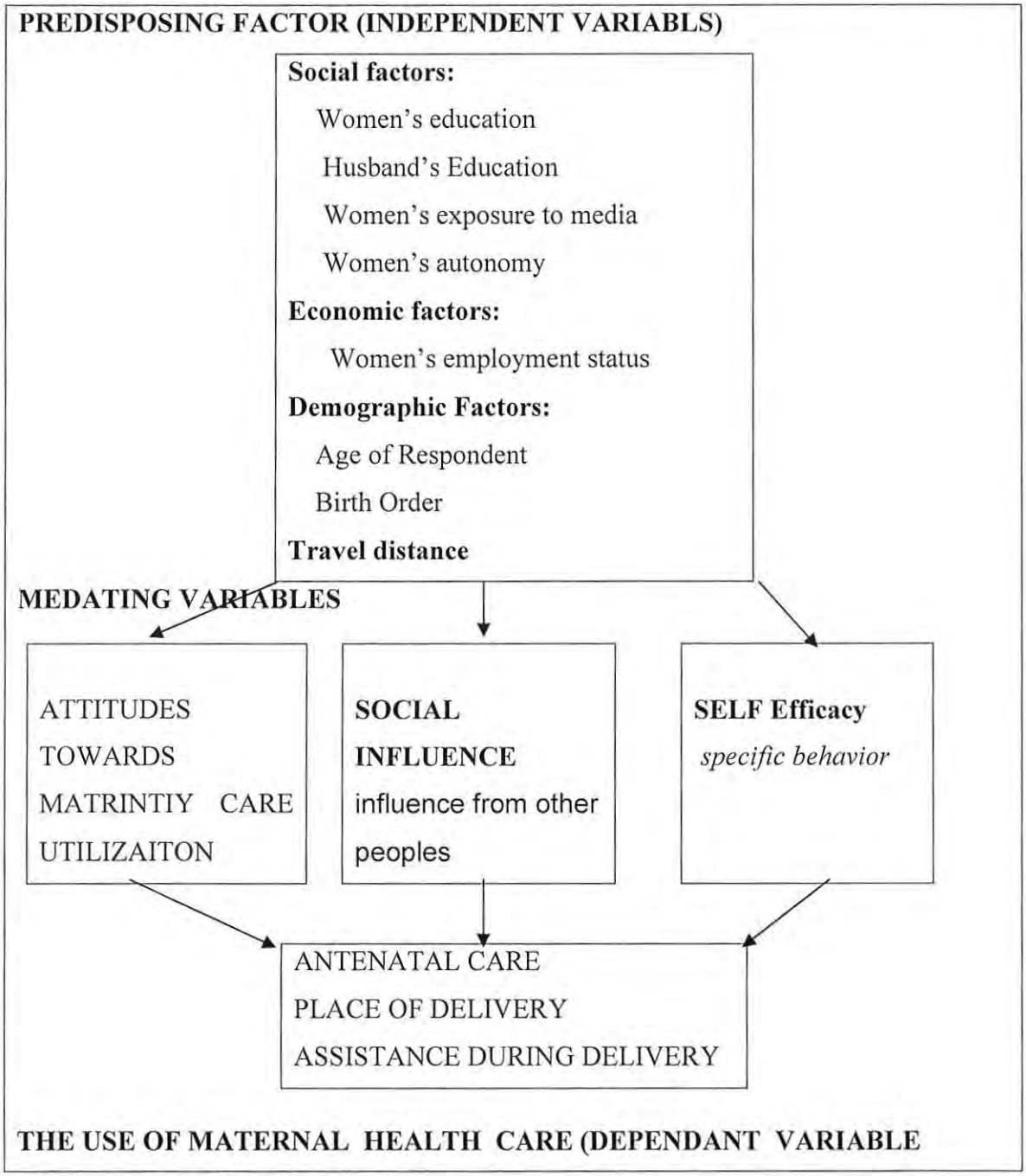
There is also a modelDeveloped by Amooti- Kaguna & Nuwaha which has been used in studies on determinants of utilization of health care services in general and maternal health care services in particular. *"The Attitudes - Social influence - Self-efficacy (ASE)"* model predicts various health related behaviors. There are three main psycho-social factors which have been identified that predict behavior intention: attitudes, social influences and self efficacy. A person's **attitude** towards a specific behavior is *a result from performing the behavior, for example a person's attitude in deciding whether to use family planning or traditional practices.* **Social influence** is as a result of *social norms: influence from other peoples whether to perform or refrain from the specific behavior, and whether other people in society perform or refrain from dong specific behavior.* **Self-efficacy** expectations can be seen as *a person's belief whether she/he can perform the desired behavior and manage the barriers that may prevent him/her from doing specific behavior* (Amooti- Kaguna & Nuwaha 2000).

The implication of the model is that a person's health behavior can be changed by changing person's attitudes, person's perception of social norms and social support and her/his self efficacy expectations (Amooti-Kaguna & Nuwaha 2000). Moreover, External variables, such as social, demographic and economic factors, are expected to influence behavior through behavioral determinants and intention.

Based on the above information and related literature, the present study constructed and used the following conceptual framework to identify the determinants of MHC utilization in study area. In this study, the model of maternal health care service use draws on the three conceptual frameworks of health seeking behavior adapted from Andersen, Kroeger and Amooti-Kaguana & Nuwaha. However, it cannot use the entire determinants in all frameworks, because the sufficient data are not available. Thus, a modified framework is created, corresponding with the data from the Survey in Boloso sore Worda in selected kebele.

The framework covers possible factors influencing MHC utilization and specifies the mechanism through which they operate. Socio-economic and demographic variables, such as education, occupation, women's status, living area and women's exposure to media as well as demographic variables, such as age, and parity, are included.

Figure 1.1: Conceptual framework



Source: *prepared by the researcher*

2.5 Objectives of the Study

2.5.1 General Objective:-To identify socio-economic and demographic factors affecting the utilization of maternal health care services.

2.5.2 Specific Objectives:-

I. To examine the association between social, economic and demographic factors and utilization of maternal health care services

II. To analyze the dominant factors that positively or negatively influence the utilization of maternal health care services,

III. To identify the role of health extension workers in improving maternal health care service utilization of women's

IV. To suggest possible policy directions based on the findings of the study.

2.6. Hypotheses of the study

The following research Hypotheses of the study emerged from the above statements of the problem and objective:

I. ANC, DC and skill assistance during delivery service utilization in Boloso sore Woreda is low.

II. Women's education affects the utilization of MHC Service

III. Health extension worker play a great role in maternal health care service utilization of women.

2.7 Operational Definition of Terms and Concepts

Antenatal care: it is health care received by mothers at the time of their pregnancy from health professional. Antenatal care is more beneficial in preventing adverse pregnancy out comes when it is sought early in the pregnancy and continued through to delivery. Health professionals recommend that the first antenatal visit should occur within the first three months of pregnancy and continue on a monthly basis through the 28th week of pregnancy and fortnightly up to the 36th week (or until birth). If the first antenatal visit is

made at the third month of pregnancy, and as early as recommended, there would be a total of at least 12 to 13 antenatal visits (WHO).

Delivery care: the service given for a pregnant woman during labor; management of normal delivery and detection of complications, management of risk cases in labor and complicated cases (MOH, 2005/06). In this study delivery care is considered as a care given by health professionals during delivery.

First Trimester: the period between the date of conception and the end of the third month of pregnancy.

Neonatal mortality: the probability of dying between birth and exact age one month (Mahy, 2003)

Second Trimester: The period after the third month of pregnancy till the end of the sixth month.

Skilled Birth Attendant: refers exclusively to people with midwifery skills (for example midwifes, doctors, and nurses) who have been trained by professionals about the skills necessary to manage normal deliveries and diagnose or refer obstetric complications.

Tetanus Toxoid Injection: an injection given to a woman during pregnancy to prevent the baby from tetanus infection. It is usually given to the woman during an antenatal visit.

Timing of ANC: The number of months from when a woman conceived until she made her first antenatal care visit.

Third Trimester: The period after the sixth month of pregnancy till the end of the ninth month (date of delivery).

Traditional Birth attendant: is a person who assists the mother during childbirth and initially acquired her skills by delivering babies herself or through apparent ship to other TBAs.

***Utilization of maternity care services*:** Refers to a woman attendance in a maternal health service for Antenatal care, Tetanus toxoid injection and Delivery care and in this study at least one professionally assisted ANC, TTI at least one and professionally assisted delivery and postnatal care will be considered as an indicators to utilization of MHC services.

CHAPTER THREE

Data Source and Methodology

3.1 Study area and target Population

3.1.1 Study Area and the Existing MHC Services

The study was carried out in Boloso sore woreda; one of the rural and densely populated districts of Woliata Zone, in SNNPR. According to statistical abstract (2010), the total populations of the district was estimated at 166,472 out of which 33,837 (20.33%) were females aged 15-49 (CSA, 2008). The district was organized in to 31 kebeles. The great majority of the population depends on subsistence agriculture. Most of the kebeles lie between 1750 to 2200 meters above sea level. The woreda has one Maternity Hospital, seven Health Centers, 31 Health Posts and 62 HEWs.

3.1.2. Study Population

woman in the reproductive age groups (15-49) who were resident of Boloso sore Woreda and had at least one live birth in the past five years preceding the survey were included in this study.

3.2 Data Source and Limitation

Face to face interviews were conducted with structured questionnaires that were developed for this study purpose. Using the questionnaire, the data that contained information about women's background characteristics (*marital status, education, media exposure, etc*); knowledge and use of family planning methods; reproductive history and fertility preferences; ANC, place of delivery and assistance during delivery were collected. Questions about marriage and sexual activity; and woman's work and husband's background characteristics were also included in this questionnaire. A total of 3 focus group discussions were carried out. Each of the FGD had a total of 6-9 participants. Semi-structured, open ended questions were used in order to gain more insight into maternal health care practice in the Boloso Sore Woreda from the participants

of the FGD (Woman aged 15-49, Husband Religious and community leaders). The members of each FGD were selected on convenient bases by the supervisors and the principal investigator. Published and unpublished materials like, Book, Journals, woreda Health sector reports were the source of secondary data.

Major limitation of the data was that it does not cover some important possible predictors about the utilization of maternal health services, for example transportation services, the quality of care other service related factors and respondent's belief concerning health practices. And shortage of budget, time, data, experience... that hinder not to carry out further investigation.

3.3 **Inclusion Criteria:** women in the reprodactive age group who were residents of randamly selected rural kebele,who had at least one live birth in the past five years presding the the survey.

3.4 Study Design

Household based cross-sectional study design was employed for quantitative date collection to assess maternal factors that have impact on MHC Service utilization in the study area.

3.5 Sample Size Determination

The sample size was determined by the formula (Cocharn W.G, 1977)

$$n = \frac{[z\frac{\alpha}{2}]^2 \times p(1-p)}{e^2}$$

Where: $n = is\ the\ sample\ size\ without\ considaring\ non-respondants$

$p =$ the proportion of woman do not get MHC service in $the\ study\ area$

$z = level\ of\ confidence\ and$

$e = margin\ of\ error$

Due to absence of previous prevalence data on the study population and to get the maximum sample size, since no study has been conducted on the area of ANC service

utilization, 50% prevalence (p) rate is taken to obtain sufficiently large sample size. Margin of error $e = 5\% = 0.05$ and Level of confidence was taken to be 95% (z= 1.96)

Therefore $n = 384$

Considering 1.5 designing effect and a 10% allowance for non-respondents, absenteeism and refusal to participate in the study, the final sample size N is

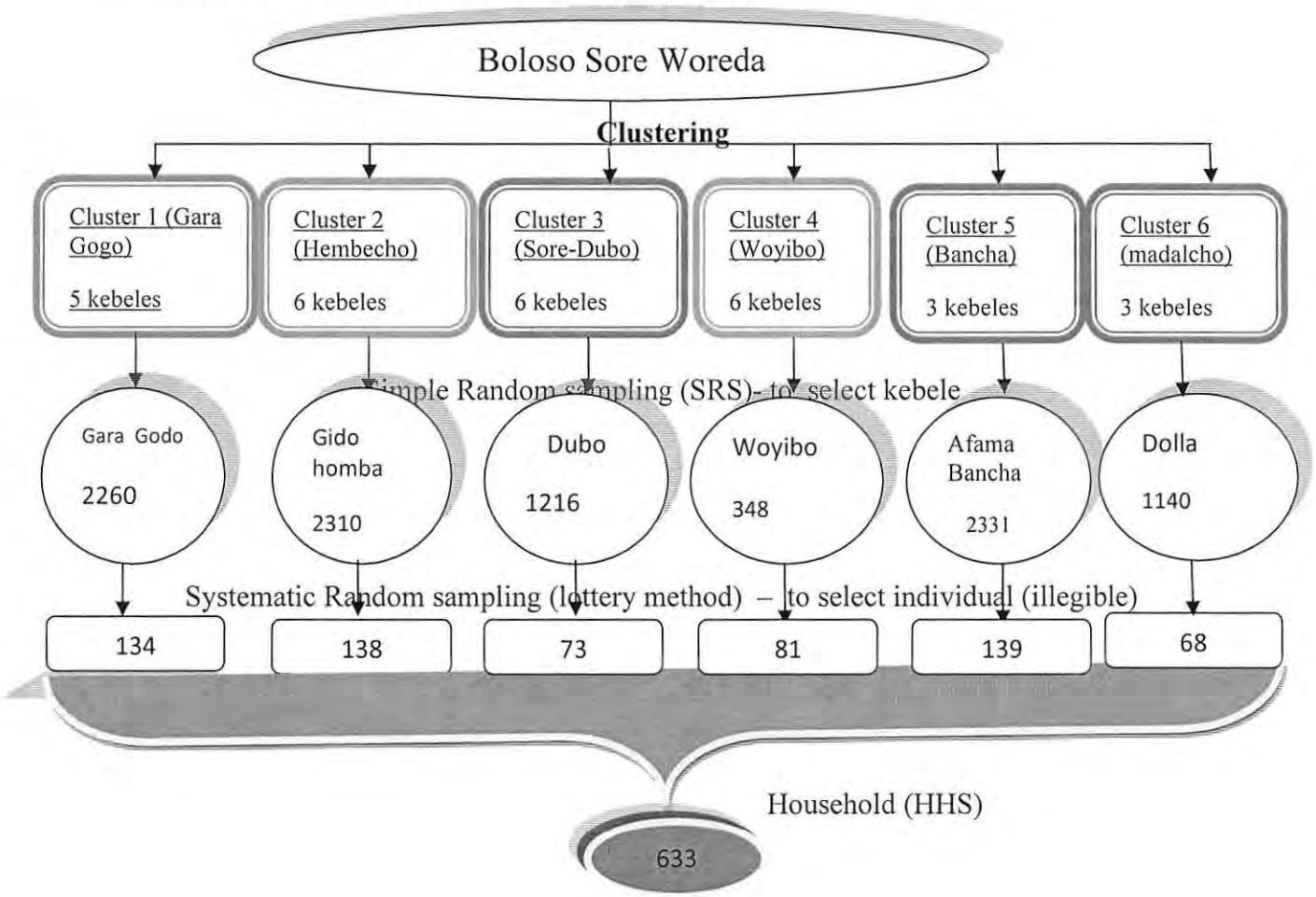
n ×1.5+0.1(1.5×n) =384×1.5+0.1 ×1.5×384 = 633

3.6 Sampling Technique

The sampling technique was a multi-stage sampling that considers the cooperative unions (clusters) and distance from woreda town. All kebeles were included in the 6 clusters/cooperative union and one kebele from each cluster was selected randomly. The sample size for the selected kebele is determined according to the principle of PPS (probability proportional to size, size being the number of women's in the reproductive age in the selected kebele). Initial house to house survey was conducted in each selected kebele to list and register those women who were eligible according to the inclusion criteria.

Thus, the total participants were identified and the sample women (those aged 15-49 and had at least one children in the last five year preceding the survey) from each sampling frame were selected by using systematic random sampling technique (Lottery) and questionnaire were administered to the total of 633 identified women.

Figure 3.1 schematic presentation of sampling design



Sample size selected from sampling frame of kebele is calculated according to proportionate sampling technique:

$n_i = {}^{N_i}/_{N} * n$ Where: n_i = Number of women selected from each sample kebele

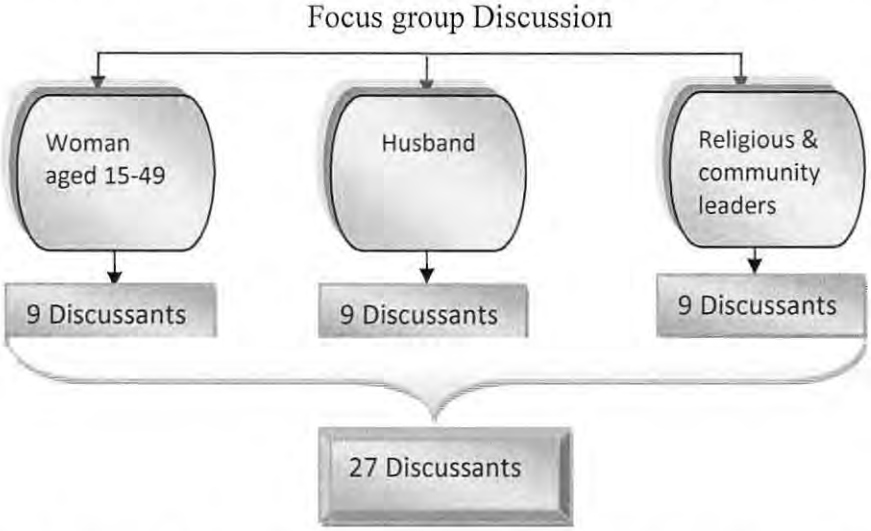
N_i= Frame eligible women in each kebele

N= Total sampling frame

n = Total sample size

Focus group discussion: For the qualitative data the kebeles administration, the head of the District desk, and the supervisors, with principal investigator were used to identify eligible discussants. A total of three FGDs were conducted with woman aged 15-49 years, religious and community leaders and husbands separately to get in depth information on key issues by ensuring homogeneity, Awareness about utilization of ANC, Place of Delivery and Assistance during Delivery and major reason for the non-utilization were the main issues discussed during the FGD.

Figure 3.2: Schematic presentation of sampling procedure for qualitative method



On this study three FGD discussions were conducted on the quantitative data to support the qualitative data.

3.7. Field Work Procedure, Training and Supervision

Structured and pre-test questionnaires which were first prepared in English and translated to Amharic language were used to collect the quantitative data. Twelve and 10^{th} grade completed female interviewer, and 6 Nurse Supervisors who were fluent speaker of the local language, Wolitigna, were given a thorough training on the general objective of the study, interview techniques and the questionnaire for two days before the beginning of data collection.

Pre-testing: The pre-test of the questionnaires was carried out in one of the kebeles which was not selected for the study in Boloso Sore woreda and out of the selected kebeles that had similar socio-economic and demographic characteristics with the people. A total of 20 respondents were interviewed. Both the interviewers and supervisors assessed clarity, understandability and completeness of the questions and then based on the results; the questions were edited and modified.

Data collection: After completing the result of pre-testing, discussion was held with supervisor, and data collectors and care was taken not to include the kebele where the pre-test was made. Then, the data was collected using house-to-house interview questions and FDGs.

Supervision: The quality of data was ensured through proper training of data collectors and pre-testing of the questionnaire, close supervision of data collectors and getting immediate feedback, checking each of completed questionnaires daily, daily information exchange to correct problems during the course of data collection. All completed questionnaires were checked for completeness, accuracy, and consistency of responses by the principal investigator every day. Anything which was unclear was corrected and communicated to the data collectors on the next day.

3.8 Data Processing and Methods of Data Analysis

3.8.1 Data Possessing

After data collection, each questionnaire was checked manually for completeness and end coding at the right margin of the questionnaire followed by almost all variables in the questionnaires. After this validation the principal investigator entered the data using **SPSS** version 16.0 for data analysis.

3.8.2 Method of Data Analysis

In order to examine the relationship between the independent and dependent variables both descriptive and inferential statistical methods were used. In the analysis of data, bivariate and multivariate applied to identify the important factor that influence the utilization of MHCS, chi square test was used to observe a significant association between each of the dependent variables and the social, economic, demographic factors.

Further, because of the complexity of relationships between the dependent and independent variables, binary logistic regression models were used as a multivariate analysis tool to obtain Odds ratios at 95% confidence intervals. Such a method of analysis is useful in examining the critical factors that influence the use of MHCS. However, this study employs the logistic regression analysis because each outcome variable of maternal health is categorized into two categories, indicating that the data are dichotomous. It predicts the log of odds of the dependant variable as a linear function of independent variables. The logistic model for K independent variables $(x_1, x_2, x_3, \dots, x_k)$ in this situation is given as follows:

$$logit(p_i) = Ln\left({}^{p_i}/_{(1-p_i)}\right) = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + \cdots + B_KX_K$$

Where the dependant variable y_j and quantitative independent variable

$X_{ij} = 1,2,3,\dots,k \text{ and } i = 1,2,3,\dots,n.$

$B_0 = Regression\ coefficient$

EXP (B_0) = Odd ration for a person having characteristics i versus not having characteristic i.

$Let\ P_i = P(K_{ij})$ Denotes the "success probability"

When K_{ij} takes the value X_{ij}, we can assume that the transformed variable

$Ln\left({}^{P_i}/_{(1-P_i)}\right)$ has a linear form of this logit probability.

Where B_i refers to the effect of X_{ij} on the log odds that $Y_i = 1$, controlling for other X.

See Hosmer and Lemeshow (1989) for details.

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3.9 Ethical Issues

The present study has got official approval from the Center for Population Studies, Addis Ababa University. All respondents were asked verbally for informed consent before participation. The participants of the study were informed about the purpose of the study. They were also informed as they could skip questions that they do not want to answer fully or partly. After assuring the confidential nature of the response (the anonymity of the informant) and obtaining informed consent from the study subject, the questionnaire was filled with strict privacy. Even husband and wife were asked in separate places.

Variables Included in the Model

Table 3.1: Description of same variables considered in the study

I. *Dependent Variables*

Variables	*Category*
Antenatal care for pregnancy	0 = not received 1 = received
Place of Delivery	0 = home 1 = public/private hospitals or clinics
Assistance at Delivery	0= unskilled attendants 1 = skilled attendants

II. *Independent Variables*

Respondent educational level	0 = no education 1 = educated
Husband's educational level	0 = no education 1 = educated
Exposure to media	0 = No Exposure to Media 1= Exposed to Media
Respondent's occupation	0 = housewife 1 = Other
Current age of respondent	1 = 15-24 years 2 = 25-34 years 3 = 35-49 years
Birth order	1= 1-2 2= 3-4 3= 5^{+}
Travel distance	<2km 2-4km >4km
Quality/kill of health extension workers in respondents opinion	0= satisfactory 1= good 2= very good
Husband/partner age	0= <30 1= 30-45 2= >45
Woman autonomy	0= Low autonomy 1= High autonomy

CHAPTER FOUR

4. Determinants of Maternal Health Care Utilization in the Study Area: Results of a Bivariate Analysis

4.1. Demographic Characteristics of Respondents

The overall response rate was 633 women who had at least one live birth in the last five years prior to the survey were interviewed from the selected six kebeles making the response rate 100%. The age distribution of the sampled women show that 163 (25.8%) of the total respondents were below 25 years of age while 332(52.4%) were in 25-34 age groups and the remaining 213(21.8%) were 35 years or older.

Table 4.1: Percentage Distribution of Women by Demographic Characteristics, Boloso sore Woreda, 2012

Demographic Characteristics of the Respondents	Category	Frequency	Percent
Age of the Respondents	15-24	163	25.8
	25-34	332	52.4
	35-49	138	21.8
Number of Children in Group(CEB)	1_2	162	25.6
	3_4	178	28.1
	5+	293	46.3
Distance From Home to Health Facility	< 2km	159	25.1
	2-4km	315	49.8
	>4km	159	25.1
Husband's/Partner Age	<30	207	32.7
	30-45	330	52.1
	>45	96	15.2
N= 633			

Source: Survey data, 2012

Birth order of the index child has been included in the analysis to capture both the woman's previous experience with pregnancy and birth and family size effects associated with health service use (Elo 1992). Birth order is also included in this study. It is classified into three categories: women with birth order 1-2 child (62, 25.6%); those with 3-4 (178, 28.1%); and those with 5 or more (293 46.3%).

About 90 percent of the rural residents travel on foot to attend the nearest health facility and with no transportation cost (World Bank and Minister of Health, 2005). In this study, 25.1% of the respondents were found at the distance of less than 2km from the nearest health facility, 49.8% between 2-4km and the rest 25.1 % more than 4km. Regarding the age of husband/partner 32.7% were married o men aged less than 30 years, 52.1% to those of age between 30-45 years and the remaining 15.2% were married to those aged 45 years or older.

4.2 Socio-economic Characteristics of Respondents

The study collected information on socio- economic characteristics mainly; maternal education, exposure to media, ethnicity, occupation, husband education, quality of health extension workers and woman autonomy. The level of female illiteracy in study area was more than half. Fifty-eight percent of the women in the sample had no education, and the educated ones were 41.9%. This research has used a similar categorization for husband's education as well. Husband's education may also be a reflection of his attitudes toward modern medicine which in turn could influence the wife's decision to seek formal health care. Women in the sample were asked to report on their husbands' education. It can be seen from the data that husband's level of education was different from that of women at similar level. Fifty eight percent of the women were educated husband, while 42% had no education husband at all.

Regarding ethnically, as the area is predominantly occupied by Wolaita ethnic group, almost all the respondents (624 or 98%) were Wolaita, while other ethnic groups accounted for 1.4% of the respondents. The information about woman's accessibility and exposure to information through media resources was obtained by asking how often a respondent listened to the radio, watched television and read newspaper/magazines. In

the present analysis, women's exposure to media is defined as a binary variables that takes the value of one if any woman in the household listened to the radio or watched television or read newspapers or magazines at least once a week. Seventy-five percent of the respondents did not have exposure to media at all, while 156 (24.6%) had exposure to media at least once a week.

Table 4.2: Percentage Distribution of Women by Socio-economic Characteristics, Boloso sore Woreda, 2012

Socio- economic Characteristics	Category	Frequency	Percent
Educational Status of Respondents	Illiterate	368	58.1
	Literate	265	41.9
Respondent's Exposure to Media	high frequency	156	24.6
	low frequency	477	75.4
Ethnic Background of Respondents	Wolaita	624	98.6
	Others*	9	1.4
Occupation of the Respondents	House wife	496	78.4
	Other **	137	21.6
Educational Status of Women's Husband	Illiterate	256	41.9
	Literate	368	58.1
Quality of health extension workers in respondents opinion	satisfactory	189	29.9
	good	215	34
	very good	229	36.2
woman autonomy	low autonomy	398	62.9
	high autonomy	235	37.1
Religion	Protestant	443	68.0
	Orthodox	151	24.0
	Other***	52	8.0

N= 633

*Others in the Ethnicity include (Amhara, and Kambata).

**other in the occupation include(Civil servant, Merchant, Student and Farmer)

*** Others in Religion represent

Source: survey data, 2012

Regarding the respondents occupation, 562(78.4%) were housewives, and 137(21.6%) were either civil servants, Merchants, student or farmers. The quality of health extension workers in the respondent's opinion was found to be satisfactory by 189(29.9%) women, good by 215 (34%), very good by 229(36.2%). Freedom of movement, decision making power and control over finance were high autonomy and there is no/other are low autonomy. This research has used woman autonomy in to analysis.

The degree of women's autonomy is captured in one area; her decision making power of the respondents on the following issues. Firstly, who in the family decides on checking her own health care?; secondly, who decides on making large household purchase?; thirdly, who decides on making household purchase for daily needs?; fourthly, who decides on visiting other families and relatives; and finally, who decides on kinds of food should be cooked every day. In all five decisions, women are the main (or jointly with their husbands or others) decision makers.

In this study, women are considered to participate in decision making if they make decisions alone or jointly with their husband or someone else. A composite measure was created using the sums of equally weighted binary input variables. Women were scored 1 for answers to each factor that included her (alone or jointly) in decision making, otherwise they were scored 0. The index of decision making power contained five factors, thus the respondents were scored from 0 to 5. Two binary measures from these indexes were created to indicate women with high versus low autonomy. The high and low categories were created by dividing the sample indexes into approximately half; 398(62.9%) of women were low autonomies and 235(37.1%) of women was high autonomies. The area was predominantly occupied by followers of Protestant religion with 443 (68%) of the interviewed women being followers of Protestantism, whereas 151 (24.0%) were followers of Orthodox Christianity and the remaining 52(8.0%) belonged to other religious group (Islam, Catholicism and traditional).

4.3 Maternal Health Care Utilization in the Study Area

4.3.1 Maternal Health Care utilization

Maternal health care is the dependent variable in this study. The respondents (ever-married women aged 15-49 years who had at least one live birth in the last five years presiding the survey) were asked whether, with respect to last pregnancy and live birth, had any antenatal care and for the delivery care, where it took place and who assisted with the delivery.

Table 4.3: Respondents level of antenatal care (ANC) use, place of birth delivery and delivery assistance

Descriptive statistics.	Frequency	Percent
Antenatal care(ANC)		
Received antenatal care	261	41.2
Not received antenatal care	372	58.8
Place of delivery		
home	592	93.5
Institutional delivery	41	6.5
Assistance during delivery		
*Delivery by skilled attendant**	119	18.8
*Delivery by unskilled attendant***	514	81.2
*doctors, nurses or midwives		
Total 633 **TTBA, UTTBA, relatives, other informal birth attendants, and none at all		

Source: Survey data, 2012

Table 4.3 above shows the level of utilization of all three maternal health care services by ever-married women aged 15-49 years who had a live birth in the five years preceding the survey. Three categories of maternal health care services are shown in the table. Pregnant women are generally recommended to attend ANC services for reasons like screening, identification and referral with risk factors. However, this study shows that the coverage of ANC is very low in Boloso sore woreda of Wolaita Zone. In terms of all level of service about 41.2% of women received ANC, 6.5% of woman delivered at health facility and 18.8% had skilled assistance during delivery in the five years preceding the survey. The level is slightly higher in ANC and skilled assistance during

delivery when compared to country level of 34% and 10 % respectively (CSA &ORC MACRO, 2012).

4.3.2 Number and Timing of ANC use and Relationship between MHC services

To allow for sufficient time to identify and treat problems such as anemia and infections, women are recommended to start antenatal care early in pregnancy. For better efficiency of antenatal care, different studies documented, at least four antenatal cares. Thus, the number and timing of antenatal care visits can be a factor for its effectiveness. Health professionals recommend that the first ANC visit is beneficial if sought early in pregnancy (within three months of pregnancy and continued until birth). However, among the total women who attended ANC, only 5(2 %) started the visit in the first trimester whereas the majority 217 (83%) booked in the third and 38(15%) in the second trimesters (table 4.4).

Table 4.4: Percentage distribution for Timing to start ANC Visit and Number of ANC use by year of the survey

	Frequency	Percent
Timing of ANC		
First Trimester	5	2.0
Second Trimester	38	15.0
Third Trimester	217	83.0
Total	260	100.0
Number of ANC		
Once	49	19.0
Two- Three times	133	51.0
Four and more times	78	30.0
Total	260	100.0

Source: Survey data, 2012

In general, more than 98% of women received antenatal care after the first trimester. Not knowing the pregnancy status in time and absence of pain during pregnancy was mentioned in the focus group discussions (FGD) as the main reasons for not receiving antenatal care in time.

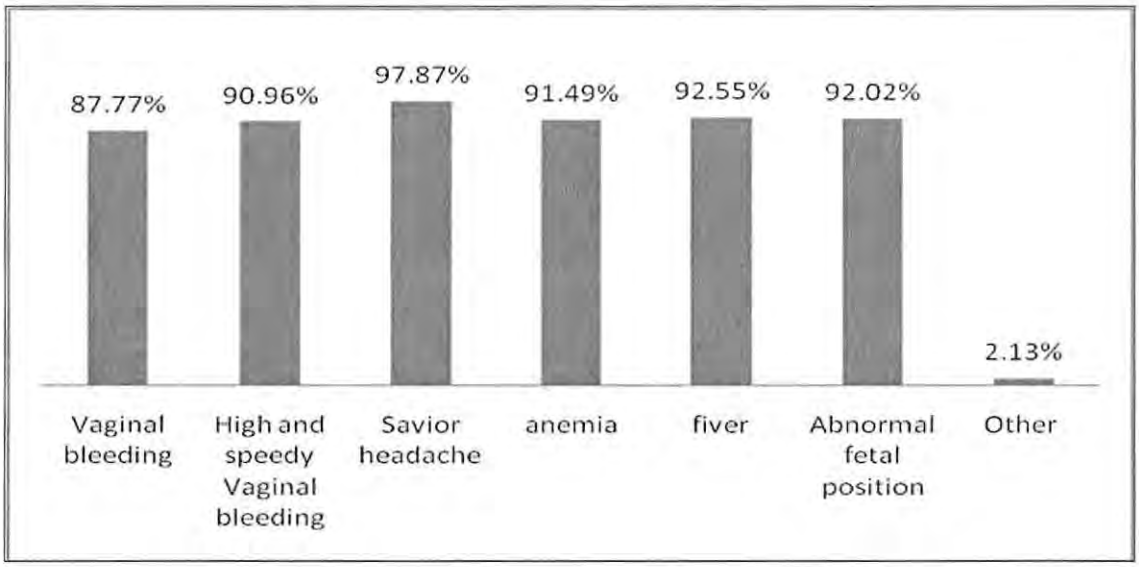
Table 4.4 shows the percentage distribution of women who received antenatal care according to the number of visits. Nineteen percent of women had only one antenatal care

visit whereas 133(51%) had two to three visit, only one third or 78(30%) of woman received ANC service for four or more times as recommended.

4.3.3 Components of ANC Utilization

The content of antenatal care is important in assessing the quality of antenatal care services. Pregnancy complications are an important source of maternal and child morbidity and mortality, and thus teaching pregnant women about the danger signs associated with pregnancy and the appropriate action to be taken are essential components of antenatal care. Figure 4.1 and 4.2 shows the percentage of women who were informed about the signs of pregnancy complications and the percentage who received routine antenatal care services among women receiving ANC respectively.

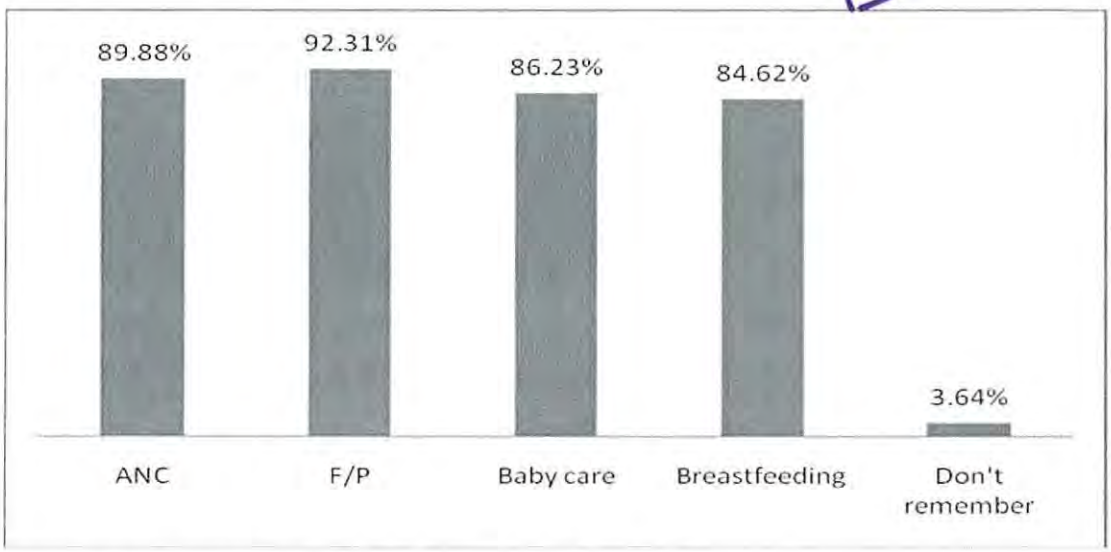
Figure 4.1: Respondent Knowledge of sign of pregnancy



Source: Own multiple response field survey data, 2012

From women's who received antenatal care, seventy-one percent of mothers reported that they were informed about pregnancy complications during their visits, most respondents were able to name most of the complication arising from pregnancy: Vaginal bleeding (87.77%), High and speedy Vaginal bleeding (90.96%), Savior headache (97.87%), anemia (91.49%), fever (92.55%), Abnormal fetal position (92.02%), and other (2.13%)

Figure 4.2: Respondent Knowledge of Health Education



Source: Own multiple response field survey data, 2012

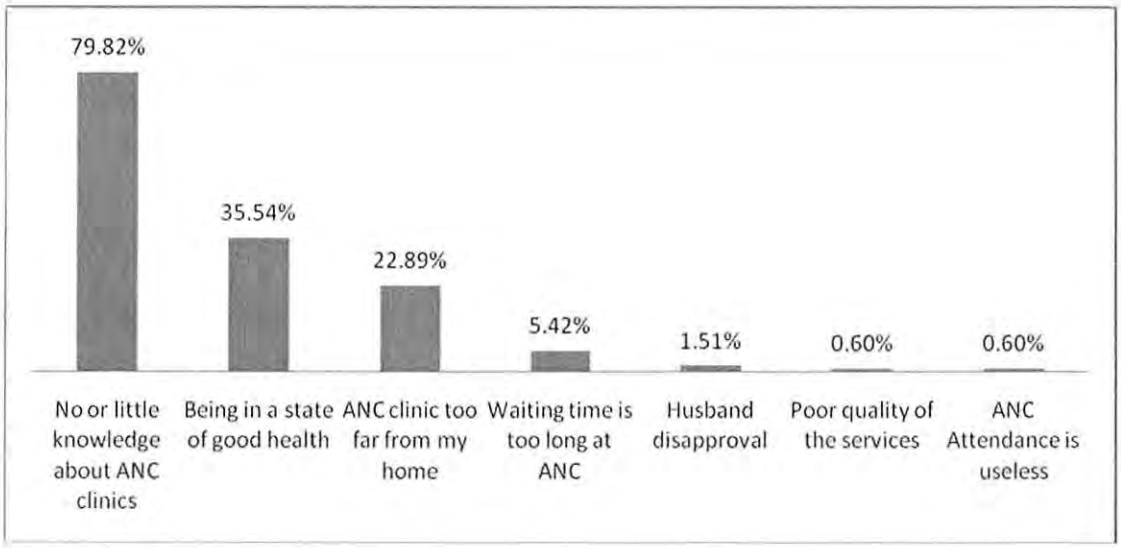
The figure presents information on the percentage of women who took health education during their last pregnancy by type of health education received.

4.4. Main Reasons for Not Choosing Attendance ANC

It was pointed out that out of the total number of women included in the study, 372(58.8%) didn't use ANC. Effort was made to find out the possible reasons for not using the service.

The question was designed to enable the respondents to give multiple responses for this question. Various options were put in the questionnaire during the interview but the respondents were not let to know the options in the questioners. After data collection was completed an attempt was made to code the responses. According to the finding, most frequently given reasons were factors related to lack of knowledge about ANC Service which was reported by 79.82%, followed by 35.5% who reported that it was not necessary as they were in a state of good health, and distance from health facility was too far reported by 22.89%.

Figure 4.3: Respondent Reasons for ANC not to attend in Boloso Sore Woreda

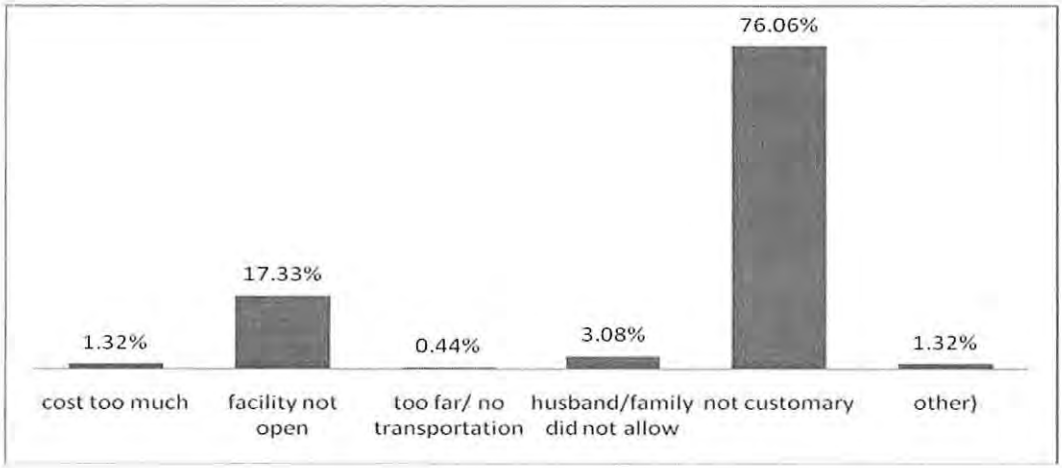


Source: Own multiple response field survey data, 2012

4.5. Main Reasons for not Choosing Institutional delivery

According to the finding below, most frequently responded reason was factors related to not choosing institutional delivery are: not customers 76.06%, followed by facility not open 17.33% and husband/family did not allow were 22.89% responded.

Figure 4.4: Respondents Reason for not choosing institutional delivery



Source: Own multiple response field survey data, 2012

Most of the respondents mentioned that they preferred home as delivery place, and almost all had given birth at home for most recent birth. According to FGD participants, economic, social and cultural believes, transport problems, poor quality of services, decision making power, sudden onset of labor and poor access to the health facility were the main reasons why mothers gave birth at home. They also mentioned the above factors as the main barriers for not using health facility services in general. They pointed out that home delivery reduced unnecessary transport and other costs. Some of the mothers stated that they even gave birth at home after attending ANC services because of long distance of the HF. They also claimed that mothers who had educated family and relatives living in towns and cities had better information about institutional delivery and gave birth at HFs.

4.6. Relationship between Maternal health care utilization and demographic characteristics of the Respondents

Numerous studies in developing countries have shown that demographic factors such as age, parity and place of residence are associated with the use of maternal health care (Sharma et al, 2007; Wong et al, 1987; Obermeyer, 1993). It is well responded findings of the present study support these observations. They show that maternal health care utilization has statistically significant association with the age of women. As shown in Table 4.5, the age of women is associated with all three dependent variables: the use of antenatal care ($p = 0.000$); the place of delivery ($p = 0.000$) and Assistance at delivery ($p = .000$). The data suggest that the relationship between maternal health care utilization

Table 4.5: Percentage Distribution of Women by Maternal health Care Service Utilization Based on Age of Woman's, study Area 2012

Maternal Health Care	Women's Age				
	15-24	25-34	35-49	χ^2	P
Use of antenatal care				18.575	.000
Not received	74(45.4)	203(61.1)	95(68.8)		
Received	89(54.6)	129(38.9)	43(31.2)		
Place of delivery				46.786	.000
Home/others	134(82.2)	322(97.0)	136(98.6)		
Public/private health facilities	29(17.8)	10(3.0)	2(1.4)		
Assistance at delivery				19.368	.000
Unskilled attendants	119(73.0)	267(80.4)	128(92.8)		
Skilled attendants	44(27.0)	65(19.6)	10(7.2)		

Source: Survey data, 2012

Old age (35-49) women might have enhanced their knowledge of modern healthcare services and placed more value on modern medicine. However the results in Table 4.5 indicate that women in this age group have the lowest usage in all forms of maternal health care services. The women in age group 15-24 were more likely to utilize all maternal health care services than those in aged 25- 34 and 35-49 groups. Those aged 34-49 tend to have lower percentage in using all forms of maternal health care, but for different reason according to the focus group dissociation. The higher percentage of younger women who received antenatal care service may be because they are young did not have pregnancy experience, fear of the complication of pregnancy, increasing educational status, and high frequency of media exposure. Older women, on the other hand, may feel that they have greater experience in pregnancy, less educated and less exposure to media; consequently they may give less importance to obtain institutional care.

According to Table 4.5, giving birth in formal facilities was more pronounced for those aged 15-24 years than those at the older age groups. The lowest percentage was in the old age group. The percentage declines from 17.8% in the age group 15-24 to 3.0% in the age group 24-34 and then to 1.4% in the 35-49 year age of group. Similarly, the relationship between the use of skilled attendants at delivery and women's age was inversely related with age of women. Highest percentage was observed for women in the 15-24 year age group 27%, followed by those aged 25-34 19.6% and lowest in age group 35-49 year 7.2%.

Table 4.6: Percentage Distribution of Women by Maternal health Care Service Utilization Based on Women's Working Status, study Area 2012

Maternal Health Care	Birth Order				
	1_2	3_4	5+	χ^2	P
Use of antenatal care				70.632	.000
Not received	59(36.4)	92(51.7)	221(75.4)		
Received	103(63.6)	86(48.3)	72(24.6)		
Place of delivery				13.185	.001
Home/others	143(88.3)	165(92.7)	284(96.9)		
Public/private health facilities	19(11.7)	13(7.3)	9(3.1)		
Assistance at delivery				4.354	.113
Unskilled attendants	128(79.0)	138(77.5)	248(84.6)		
Skilled attendants	34(21)	40(22.5)	45(15.4)		

Source: Survey data, 2012

Table 4.6 above, illustrates that the independent variable (birth order) has a significant impact upon the maternal health care especially antenatal care, and place of delivery $p \leq 0.05$ and not significant in assistance during delivery. The negative effect of birth upon the use of antenatal care and place of delivery is illustrated by the consistent decline in the percentage of women who used antenatal care and deliver in health facility with the increase in number of children ever born. Woman with 1-2 pregnancies were more likely to seek maternal health care services for first order than higher order births.

In other words, women who have more children tend to received less antenatal care. Such evidence suggests that women with more children tend to neglect their own health during pregnancy, although such care is important in avoiding the risk of pregnancy complications and the risk of dying that may occur during delivery.

The link between birth and the use of health facilities for delivery seems to be negative. The consistent decline in percentage of women from those who have one-two child to the higher birth order indicates that the more pregnancies women have, the lesser the use of health facilities for delivery.

Table 4.7: Percentage Distribution of Women by Maternal health Care Service Utilization Based on Distance from health facility, study Area 2012

Maternal Health Care	Distance from health facility				
	<2km	2_4k.m	>4k.m	$\chi 2$	*P*
Use of antenatal care				46.795	.000
Not received	60(37.7)	193(61.3)	119(74.8)		
Received	99(62.3)	122(38.7)	40(25.2)		
Place of delivery				15.02	.001
Home/others	140(88.1)	295(93.7)	157(98.7)		
Public/private health facilities	19(11.9)	20(6.3)	2(1.3)		
Assistance at delivery				16.482	.000
Unskilled attendants	127(79.9)	241(76.5)	146(91.8)		
Skilled attendants	32(20.1)	74(23.5)	13(8.2)		

Source: Survey data, 2012

Table 4.7 shows the percentage of women according to maternal health care utilization and travel distance to the nearest health facility. Overall, travel distance to the nearest health facility has a strong and significant relationship with all types of maternal health care utilization ($p<.05$). It can be seen from the proportion of women of all distance in the table that women who are near to health facility are more likely to use all kinds of modern health care services than far distant women.

Table 4.8: Percentage Distribution of Women by Maternal health Care Service Utilization Based on husband/partner age, study Area 2012

Maternal Health Care	Husband/partner age				
	>30 years	30-45 years	>45years	$\chi 2$	P
Use of antenatal care				68.5	.000
Not received	90(43.5%)	192(58.2%)	90(93.8%)		
Received	117(56.5%)	138(41.8%)	6(6.3%)		
Place of delivery				11.152	.004
Home/others	184(88.9%)	315(95.5%)	93(96.9%)		
Public/private health facilities	23(11.1%)	15(4.5%)	3(3.1%)		
Assistance at delivery				13.199	.001
Unskilled attendants	158(76.3%)	266(80.6%)	90(93.8%)		
Skilled attendants	49(23.7%)	64(19.4%)	6(6.3%)		

Source: Survey data, 2012

Table 4.8 below shows that the age of husband/partners is significantly associated with all three dependent variables (maternal health care utilization): the use of antenatal care (p =.000); the place of delivery (, p =.000) and Assistance at delivery (p =.000). The husbands/partners of women in age group below 30 years were more likely to utilize all maternal health care services than those in aged 30-45 and above 45years age groups. Those women with husband's age above 45 tend to have lower percentage in using all forms of maternal health care.

4.7 Relationship between Maternal health care utilization and Socio-economic characteristics of the Respondents

Among the maternal attributes, education was found to have the strongest association with the use of maternal health care. Increasing the educational level of women can increase the use of maternal health care services. This is because education promotes new values and attitudes that are favorable to modern health care services.

Table 4.9 shows the percentage of women according to maternal health care utilization and women's education. Overall, women's education has a strong and significant relationship with all types of maternal health care utilization. It can be seen from the proportion of women of all educational level in the table that educated women are more likely to use all kinds of modern health care services than illiterate women. In contrast, illiterate women have shown less attention to the importance of using maternal health care services.

Table 4.9.: Percentage Distribution of Women by Maternal health Care Service Utilization Based on Educational level, study Area 2012

Maternal Health Care	Women's Educational Level			
	No Education	Education	χ^2	P
Use of antenatal care			48.921	.000
Not received	259(70.4)	113(42.6)		
Received	109(29.6)	152(57.4)		
Place of delivery			34.000	.000
Home/others	362(08.9)	230(86.8)		
Public/private health facilities	6(1.6)	35(13.2)		
Assistance at delivery			17.319	.000
Unskilled attendants	319(86.7)	195(73.6)		
Skilled attendants	49(13.3)	70(26.4)		

Source: Survey data, 2012

Of those who received antenatal care, the better educated ones used modern maternal health care more than those women with no education. The table below, reveals that the use of antenatal care was significantly associated with the level of women's education with a $p = .000$. It appears that there is a consistent increase in the percentage of women who have received antenatal care with an increase in women's educational level. While 57.4 percent of women who had educated received antenatal care, only 29.6 percent of those with no education utilized antenatal care.

The relationship between place of delivery and women's education also shows that the

use of health facilities increases with an increase in the educational level of women. It is revealed that 13.2% of educated women use formal place for delivery whereas only 1.6% of uneducated woman use institutional delivery. The association between women's education and utilization of Skilled attendants at time of delivery is very strong and highly significant $p = .000$.

Table 4.10: Percentage Distribution of Women by Maternal health Care Utilization Based on Husband's Educational level, study Area 2012

Maternal Health Care	Husband's Educational level			
	Illiterate	Literate	χ^2	P
Use of antenatal care			76.002	.000
Not received	209(78.9)	163(44.3)		
Received	56(21.1)	205(55.7)		
Place of delivery			15.856	.000
Home/others	260(98.1)	332(90.2)		
Public/private health facilities	5(1.9)	36(9.8)		
Assistance at delivery			15.058	.000
Unskilled attendants	234(88.3)	280(76.1)		
Skilled attendants	31(11.7)	88(23.9)		

Source: Survey data, 2012

Another social indicator is husband's education. As expected, husband's education shows a strong and significant association with the utilization of all maternal health care services (Table 4.10). Women who had better educated husbands tended to have better maternal health care services than those whose husbands were less educated. This is explained by the data which show that using antenatal care was more prevalent among those women whose husbands were educated. About 55% of these women used ANC service, whereas 21.1% of women whose husbands were uneducated. Furthermore, husband's education appears to have a significant impact on the use of antenatal care p=0.000.

Table 4.10 above, shows that women whose husbands had higher educational level had greater chances of using modern health facilities for their delivery compared to women with lower education. Using modern health facility was more prevalent among those

women whose husbands had some education (14.9%), compared to women whose husbands were uneducated (1.5%). Further, husband's education appears to have a positive and significant impact on place of delivery p=0.000.

Result in Table 4.10 above shows that the higher the education of husbands, the higher the tendency of women for using skilled professional birth attendants. As shown in the data, skilled assistance during delivery was more prevalent among those women whose husbands had some education (23.9%), compared to women whose husbands were uneducated (11.7%) p= .000. Women's autonomy has a strong association with all three dimensions of maternal health care utilization (Table 4.11). The strong association between women's autonomy and the use of antenatal care (p=.000) shows that women with high autonomy; tend to use antenatal care. The data reveals that the proportion of women who received antenatal care is higher among those with high autonomous women which are autonomous (55.3%) than among those who have low autonomous (32.9%).

Table 4.11: Percentage Distribution of Women by Maternal health Care Utilization by women's autonomy

Maternal Health Care	Women's Autonomy			
	Low	High	χ^2	P
Use of antenatal care			30.609	.000
Not received	267(67.1)	105(44.7)		
Received	131(32.9)	130(55.3)		
Place of delivery			43.707	.000
Home/others	392(98.5)	200(85.1)		
Public/private health facilities	6(1.5)	35(14.9)		
Assistance at delivery			34.317	.000
Unskilled attendants	351(88.2)	163(69.4)		
Skilled attendants	47(11.8)	72(30.6)		

Source: Survey data, 2012

The table shows that, women's autonomy had significant impact on place of delivery and assistance during delivery, (P=.000) seems that those women with high autonomy had delivery in health facility and more likely to be assisted at delivery by skilled birth attendants.

Exposure to media seems to have influence on utilization of MHC services. Women's exposure to media is classified into two categories: (i) Less frequently (never/less than once in a week) and (ii) More Frequently (at least once in a week) (Table 4.12). The table depicts that women's exposure to media is a strong indicator of the use of antenatal care, place of delivery, and assistance during delivery. The strong association between women's exposure to media and the use of antenatal care (p =.000) shows that the more frequently women were exposed to media, the greater their use of antenatal care. The data reveal that the proportion of women who received antenatal care is higher among those who were exposed to media more frequently (60.3%) than among those who were exposed to media less frequently (35 %).

Table4.12: Percentage Distribution of Women by Maternal health Care Utilization Based on Women's Exposure to Media,

Maternal Health Care	Women's Exposure to Media			
	Exposed to media	No Exposed to media	χ^2	P
Use of antenatal care			30.92	.000
Not received	310(65.0)	62(39.7)		
Received	167(35)	94(60.3)		
Place of delivery			94.171	.000
Home/others	120(76.9)	472(99)		
Public/private health facilities	36(23.1)	5(1.0)		
Assistance at delivery			52.429	.000
Unskilled attendants	418(87.6)	96(61.5)		
Skilled attendants	59(12.4)	60(38.5)		

Source: Survey data, 2012

In terms of place of delivery, women who read newspaper/magazine or listen to radio or watched television more frequently tend to give birth at formal modern facilities. It is noteworthy to observe in Table4.12 that women who were more frequently exposed to media were more likely to use formal facilities such as the place for delivery (23.1 percent) compared to those who were less frequently exposed to mass media (1.0 percent) indicating that women's exposure to media has a significant impact on assistance during delivery $p = .000$.).

The hypothesis that female's economic participation can lead to greater use of health services, because employment will make women socialize outside the home and finally increase their awareness and bring change in their behaviour. The occupation of women and various forms of maternal health care utilization are statistically significantly associated (Table4.13). In terms of antenatal care (p=.000), Housewives tend to receive less care (33.1 %). On the other hand, women who were Civil Servant, Merchant and Farmers were more likely to received antenatal care during their pregnancy (70.8%).

Table 4.13: Percentage Distribution of Women by Maternal health Care Utilization Based on Women's Working Status, study Area 2012

Maternal Health Care	Women's Working Status			
	House wife	Other	χ^2	P
Use of antenatal care			63.094	.000
Not received	332(66.9)	40(29.2)		
Received	164(33.1)	97(70.8)		
Place of delivery			68.636	.000
Home/others	485(97.8)	107(78.1)		
Public/private health facilities	11(2.2)	30(21.9)		
Assistance at delivery			35.871	.000
Unskilled attendants	427(86.1)	87(63.5)		
Skilled attendants	69(13.9)	50(36.5)		

Source: Survey data, 2012

Table 4.13 shows that women who were Civil Servants, Merchants and Farmers tend to deliver at health facility (21.9%) compared to women who were housewives (2.2%). A woman who is a Civil Servant, Merchant or Farmer has 22.6% higher likelihood to give birth at formal health facility and to be attended by a skilled attendant than a housewife.

Table 4.14: Percentage Distribution of Women by Maternal health Care Utilization Based on Quality of health extension worker in respondent opinion , study Area 2012

Maternal Health Care	Quality of HEW in opinions of respondent				
	Satisfactory	Good	Very good	X2	P
Use of antenatal care				87.048	.000
Not received	160(84.7)	121(56.3)	91(39.7)		
Received	29(15.3)	94(43.7)	138(60.3)		
Place of delivery				41.764	.000
Home/others	187(98.9)	210(97.7)	195(85.2)		
Public/private health facilities	2(1.1)	5(2.3)	34(14.8)		
Assistance at delivery				23.219	.000
Unskilled attendants	174(92.1)	171(79.5)	169(73.8)		
Skilled attendants	15(7.9)	44(20.5)	60(26.2)		

Source: Survey data, 2012

Table 4.14: above shows that the quality of HEWs in respondents opinion had strong and significant association with all three dependent variables (maternal health care utilization): the use of antenatal care (p =.000); place of delivery (p =.000) and Assistance at delivery (p =.000). Respondents who said the quality of HEWs "very good" were more likely to utilize all maternal health care services than those who said "good and satisfactory". In general, in the FGDs, participants suggested that respondents view regarding HEWs improve the utilization of maternal health care service also improve

CHAPTER FIVE

5. Determinants of Maternal Health Care Utilization: Results of a multivariate analysis

In this chapter, detailed analysis of the independent effect of each selected variable on the dependent variable is presented. The model used for this analysis, binary logistic regression model removes the confounding factors and shows the net effect of each independent variable on the independent variable.

Different demographic and socio-economic factors determine the utilization of maternal health care services. The tables in this chapter show the logistic regression estimates for selected demographic and socio-economic factors on utilization of ANC, DC, and Assistance during delivery.

5.1. Binary Logistic Regression

5.1.1 Models goodness of fit and multicollinearity effect

In fitting multiple regression models, the first thing to be done is to examine the existence of intercorrelation among explanatory variables. The existence of this effect in the models can be checked by using tolerance or variance inflation factor (VIF). Tolerance is $1\text{-}R^2$ for the regression of that independent variable on the other independent variables ignoring. The higher the intercorrelation of the independent variables, the more the tolerance will approach to zero. As a rule of thumb, if tolerance is less than 0.20, a problem with multicollinearity is indicated. As presented in annex B, for all three models, tolerance is found to be greater than 0.20 (Schwarz, 2007). Thus, it may be concluded that multicollinearity effects do not influence the models.

Likewise, the VIF, which is simply the reciprocal of tolerance shows whether or not the explanatory variables are related with each other. When VIF is high there is high, multicollinearity and instability of the beta coefficients. VIF $\geq$ 4 is an arbitrary but common cut-off criterion for deciding when a given independent variable displays "too

much" multicollinearity: a value above four suggests a multicollinearity problem (Schwarz, 2007).

In addition to the above test, bivariate correlation analysis was used to test correlation between two suspected variables. Those independent variables which have significant and strong correlation with each other are not entered into the model as the same time for their multicollinearity effect (see Annex C).

Goodness of Fit Test: - with respect of Goodness of fit of the model, there are various ways to assess the extent to which the model fit the data. One way of assessing how well the model fits the data is by using the Hosmer & Lemeshow goodness of fit test. Hosmer & Lemshow test is used to assess whether there is significance difference between the predicted and actual models. As presented in annex C, the model fit for MHC variables was found to have calculated χ^2 values which are less than the tabulated values and large *p* value which mean that the value of . $\chi^2 = 3.772$ and $p = 0.877$ for antenatal care and $\chi^2 = 9.293$ and $p= 0.318$ for assistance during delivery for Place of delivery the model does not fit and exclude from analysis. Insignificant values of this test show the goodness of fit of the model. Hence, we can accept the null hypothesis and conclude there is no statistically significant difference between the actual & predicted model or the model fits the data well.

Test of significance: - the next table was used to filter out the variables that have significance influence on the dependent variable; standard errors are also used to constrict confidence interval for the exp (β) coefficients, odd ratio. If the confidence interval (95%) contains 1, then it will be concluded that the change in the independent variable does not have any effect on the dependent variable. It is the predicted change in odds for a unit increase in the independent variable. If the odds ratio is less than 1, it corresponds to decrease, and odds ratio greater than 1 corresponds to increase in odds.

5.2 Multivariate Analysis of Factors Affecting Antenatal Care Usage.

Poor antenatal care is a risk factor for adverse pregnancy outcomes for both the mother and the baby. The outcomes include maternal and neonatal mortality, maternal and neonatal morbidity, premature delivery, home delivery etc. The initiation, frequency and overall quality of antenatal care are important for timely identification and mitigation of potential complications of pregnancy. However, the number of antenatal visits may not have much impact on maternal or new born health unless professional health personnel are given this care. Professional health personnel are qualified to screen and manage potential risk factors both to the mother and fetus in a timely and effective way and to provide education and counseling on how to deal with factors affecting maternal and child health outside the clinic.

The number of cases included in the analysis was 633. The result of multivariate analysis of factors affecting the use or non-use of antenatal care by ever-married women for their most recent birth in the five years preceding the survey are shown in Table 5.1. In this model, as in the bivariate analysis, husband's education continued to positively influence the use of antenatal care. The effect is found to be statistically significantly at $p<0.001$. The odds of using antenatal care suggest that compared to women whose husbands have no education, those whose husbands have some education were about 2.598 times more likely to use antenatal care.

Further, as seen in Table 5.1, woman's education also has a positive and statistically significant effect (EXP B= 2.598: $p<.05$) on antenatal care. The odds ratio of using antenatal care is higher for those educated women. Compared to those with no education (the reference category), educated women had larger multiplicative factors of 2.598 indicating the progressively higher chances of utilizing antenatal care. Husband's education was an important determinate on use of ANC, woman's with educated husband were 2.460 more likely to receive ANC than those with not educated husband.

Table 5.1: Multivariate Analysis of Factors Affecting Antenatal care utilization in study area, 2012 at 95% confidence interval					
Variables	Categories	B	S.E.	Sig.	Exp(B)/ Odd ratio (95% Cl)
Educational level of Husband	Illiterate				
	Literate	.955	.227	.000	2.598
Educational level of respondent	Illiterate				
	Literate	.901	.230	.000	2.460
Exposure to media	Less Frequent				1.000
	More frequent	.198	.275	.472	1.219
Travel distance	<2km			.000	
	2-4km	-.655	.259	.011	.519
	>4km	-1.199	.307	.000	.301
Respondent's occupation	House wife				
	Other*	.977	.269	.000	2.656
Current age of respondent	15-24 years			.173	
	25-34 years	.245	.284	.388	1.278
	35-49 years	.671	.367	.067	1.956
Birth order	1-2 children			.000	
	3-4 children	-.404	.280	.150	.668
	5+ children	-1.292	.286	.000	.275
Quality of health extension workers in respondents opinion	satisfactory			.000	
	good	1.423	.285	.000	4.148
	very good	1.767	.288	.000	5.854
woman autonomy	Low autonomy			.000	
	High autonomy	.716	.219	.001	2.047
Spousal age	<30			.000	
	30-45	-.025	.251	.919	.975
	>45	-2.134	.499	.000	.118
Constant		-1.884	.447	.000	.205

Source: survey data, 2012

There were reasons why education influences the use maternal health care service utilization. Educated women are expected to have knowledge and awareness about the advantages of the interventions and pregnancy related complication. They were more likely to seek for modern health care than those who were not educated. Education is likely to improve the general status of women and help them build up confidence to make decisions about their own health. Women who had educated husband were more likely to select health facility. The main reason for this could be that an educated husband could influence his family and wives positively. Firstly, He had reproductive health education on his formal education. Secondly, He could have better access to information through reading and following media about maternal health care. Consequently he could have better understanding about the advantages of maternal health care and pregnancy related complications.

On the contrary, as seen in Table 5.1, women's exposure to mass media ware found to have a non-significant but low positive relationship with the utilization of antenatal care services. However, with the odds ratio more than one, these variables imply that those women who are exposed to media tend to have a greater probability of using antenatal care.

Distance to a facility was found to be a statistically significant predictor of the use of antenatal care and acts in the negative direction, meaning that an increase in distance to travel to the health facility is associated with decreased use of antenatal care. The finding in Table 5.1 indicates that the odds of a woman to use antenatal care compare to travel distance less than 2km (reference category) with 2-4 km travel distance were about 48.1% less likely to use antenatal care. Furthermore, if the travel distance less than 4km were compared with travel distance greater than 2km, 69.9% less likely to use antenatal care.

Women's occupational status was found to be a statistically significant predictor of the use of antenatal care and acts in a positive direction, meaning that the occupational status change from housewife to other (civil servant, merchant, farmer, student....) is associated

with increased use of antenatal care. The odds of a woman to use antenatal care are 2.656 times higher for women who have some work compared to women who were housewife.

Women's age was found to have a non significant and a low positive relationship with the utilization of antenatal care services. However, with the odds ratio more than one, this variable implies that those women who are younger tend to have a greater probability of using antenatal care (Table 5.1).

Another predictor which was expected to have a significant association when all of the selected variables were considered was birth order. Women with birth order greater than five were less likely to use antenatal care. When comparing those women with birth order of 1-2, the result of estimated odds ratio is .275, suggesting that women with birth order of 5 or more are 72.5% less likely to use antenatal care compared to women with birth order 1-2. For the women with birth order 3-4, high and negative relationship was observed with utilization of antenatal care services.

Skill of health extension worker in the respondent opinion was found to be a positive and significant predictor of the use of antenatal care. Respondent acknowledge the quality of health extension workers is satisfactory were taken as the reference category. The results show that Respondent acknowledge the quality/kill of health extension workers is good were 4.148 times more likely to use antenatal care than Respondent acknowledge the quality of health extension workers is satisfactory. Similarly, Respondent acknowledges the quality of health extension workers very good were 5.854 times more likely to receive antenatal care than women in the reference group (Table5.1).

Woman's autonomy also acted in the expected direction and was a statistically significant predictor of antenatal care utilization. An increase in women's autonomy is associated with increased use of antenatal care. The finding in Table 5.1 indicates that the odds of a woman to use antenatal care is 2.047 times higher for women who have high autonomy on deciding on own health care, or large household purchases, or visiting other families and relatives or food should be cooked every day than for woman who were have low autonomy.

Finally, the demographic variable, age of husband was found to be a significant predictor of the use of antenatal care. Women married to husbands younger than 30 year were taken as the reference category. The results show that women married to husbands aged greater than 45 year were 88.1% less likely to use antenatal care than those in the reference category, but the relationship was insignificant on women married to husbands aged between 30-45 years (Table5.1).

5.3 Qualitative Results for ANC Service Utilization

The majority of the FGD had a positive perception of antenatal care in women, men and religious leader group discussions. They believed it was good for the health of the mother and the baby. In practice, however, most of women did not attend ANC. They mentioned that most of the women want to hide the pregnancy for their partners and community. The reasons for this denial were fear, sham and it is also traditional not to tell about the early stage of pregnancy. In both groups they discussed that mothers have poor perception about their pregnancy and they were unwilling to share pregnancy related issues. In addition they had a heavy work load, making them unaware of pregnancy related complications. Some of the participants perceived that ANC had no advantages.

5.4 Multivariate Analysis of Factors Affecting Assistance during Delivery

The results of the logistic regression model given in table From the table 5.3 we can observe that education level of respondent, education level of husband, exposure to media, travel distance, respondent, quality of HEWs and women autonomy were found to have significant influence on Skilled assistance during delivery of mothers in the study area. Whereas, age, birth order and husband's age were not significantly affect utilization of the service in the area.

Women's educations were statically and positive related to the use skilled birth attendants for de delivery assistance. The result of logistic regression model given in table 5.3 revel that women's education is the strongest predictor of skilled birth attendance. The odds ratio implies that women with better education were more likely to use health profession than those with no education. Those women with educated were more likely to use

skilled birth attendants by a multiplicative factor of 2.598 than those women with no education (the reference category).

Table 5.2: Multivariate Analysis of Factors Affecting Assistance during Delivery in study area, 2012

Variables	Categories	B	S.E.	Sig.	Exp(B)/ Odd ratio (95% Cl)
Educational level of Husband	Illiterate				1.000
	Literate	.921	.432	.034	2.501
Educational level of respondent	Illiterate				1.000
	Literate	.955	.227	.000	2.598
Exposure to media	Less Frequent				1.000
	More frequent	1.449	.296	.000	4.260
Travel distance	<2km			.000	1.000
	2-4km	.806	.293	.006	2.239
	>4km	-.419	.400	.295	.658
Respondent's occupation	House wife			.000	1.000
	Other*	.854	.275	.002	2.348
Current age of respondent	15-24 years			.073	1.000
	25-34 years	-.108	.297	.715	.897
	35-49 years	-.956	.453	.035	.384
Birth order	1-2 children			.088	1.000
	3-4 children	.573	.316	.070	1.774
	5+ children	.703	.336	.036	2.019
Quality of health extension workers in respondent opinion	satisfactory			.010	1.000
	good	1.052	.345	.002	2.864
	very good	.734	.348	.035	2.083
Woman autonomy	Low autonomy				1.000
	High	1.104	.241	.000	3.017
Husband's Age	<30			.069	1.000
	30-45	.207	.279	.457	1.230
	>45	-.894	.525	.088	.409
Constant		-3.702	.591	.000	.115

Source: Survey data, 2012

With respect to husband's education, women with more educated husbands had higher odds ratio using skilled professional birth attendants than those whose husbands had less education. Women's with educated husband were 2.501times more likely to utilize the service than those women's with not educated husbands.

Women's exposure to mass media also had a significant association with the use of services of skilled health professional as birth attendants the relationship is in the positive direction. Women who were exposed to media more frequently were 4.260 times more likely to use health professions during delivery than women who were less frequently exposed to mass media.

The finding with respect to travel distance to the nearest health facility was also significantly related with obtaining the service of health professional as birth attendants and the effect was positive. Women who had travel distance in less than two kilometer are taken as the reference category. The results indicate that Women who had travel distance in be likely to utilize the service between 2 up to 4km were 2.239 times more likely to receive assistance from health professional worker during their delivery than women who were in the reference category.

Women's occupation is also had a statically significant association with the use of professional birth attendants, and the relationship was in the positive direction. Women who were other (civil servant, merchant, farmer, student....) were 2.3times more likely to use health professions during delivery compared to women who were housewives.

Even though current age of women's 25-34 years had not statistically significant factor in the use of skilled birth assistants, there is an indication that those who are within age group 25-34 years had a greater likelihood of seeking childbirth care from health profession (Table 5.3). The odds ratio indicates that those women who age group 35-49 years have less probability i.e. 61.6 % less likely skilled delivery assistance from health professionals than age 15-24 years women.

There was a positive and significant association between Qualities of health extension worker in respondent opinion and assistance delivery care at the time of birth. The results show that respondent acknowledge that the quality of health extension workers good were 2.864 times more likely to use skilled attendant at the time of delivery than reference category. Similarly, the women acknowledge that quality of health extension workers very good were 2.083 times more likely to attend skilled attendant than the reference category ($p<.05$) (Table5.3).

Woman autonomy is statistically significant relation with skilled attendant during delivery. Briefly stated, increase in autonomy of women was associated with increased use of skilled attendant during delivery. The finding in Table 5.3 indicates that a woman's who have high autonomous decide large household purchase, or visiting other families and relatives or food should be cooked every day or income will be used...) were 3.017 times more likely use skilled attendant during delivery than low autonomous.

5.5 Qualitative Results for DC Service Utilization and Skill Assistance during Delivery

The FGDs showed that a possible reason could be that during delivery assistance TBAs were more accepted by the community than HEWs because of the community perception and, experience and Knowledge of HEWs improved by frequent on job trainings

Most of the respondents mentioned that they preferred home as delivery place, and almost all had given birth at home their most recent birth. According to the participants of the FGDs, socio-economic, demographic and cultural believes, transport problems, decision making power, sudden onset of labor and poor access of the health facility were the main reasons why mothers gave birth at home. They also mentioned the above factors as the main barriers for not using health facility services in general. They pointed out that home delivery reduced unnecessary transport and other costs. Some of the mothers stated that they even gave birth at home after attending ANC services because of long distance of the HF. They also claimed that mothers who had educated family and relatives living

in towns and cities had better information about institutional delivery and gave birth at HFs.

Most of the participants stated that their husbands and their parents were the decision makers for their health and the selection of delivery place. They pointed out that a woman should ask permissions for her husband before she goes to the HF. Some did not know whether delivery needs a decision since they did not know when their delivery day was. All the participants agreed that most of the time decisions were made by their husbands and relatives. They commented that since all were poor, illiterate and dependent, they had less decision making power about their general health. In the men groups, most of them agree as they were entitled to the decision about selection of delivery place assistance. Some of them said as the parents were also involved in decision making. They believed that this is correct.

In all the FGDs sessions it was discussed about the quality/skill of health extension worker in respondent opinion. The participants perceived as having several components, including the mothers' chances of recovery, the provision of free medicine and other services. They pointed out as main barriers the long distance from their home and the difficulty of transporting a laboring mother for two-three hours, shortage of skilled birth attendants, and of equipments. In addition they mentioned that the HEWs were not available in the health posts when needed sometimes and they had no experience on delivery service.

All the participants revealed that older mothers and TBAs were more accepted by the community than HEWs because of their experience and the respect to privacy of the laboring mother. They also perceived that the HEWs and HWs were not good on handling and respecting the laboring mothers.

CHAPTER SIX

6.1 Discussion

In this study, the researcher deployed both quantitative and qualitative methods to study the factors associated with the utilization of maternal health care services (ANC, institutional delivery service and skilled birth attendant utilization). Pregnant women are generally recommended to attend ANC services for reasons like screening, identification and referral with risk factors. However, this study shows that the coverage of ANC is very low in Boloso Sore woreda of Wolaita Zone. In terms of all level of service about 41.2% of women received ANC, 6.5% of woman delivered at health facility and 18.8% had skilled assistance during delivery in the five years preceding the survey. The level is slightly higher for ANC and skilled assistance during delivery when compared to country level of 34% and 10 % respectively (CSA &ORC MACRO, 2012).

Though institutional delivery service utilization (6.5%) was lower than the general country level of utilization i.e. 10%, it was greater than that of rural areas institutional delivery service utilization of the country i.e. 4% despite the fact that institutional delivery is free of charge and the HEP is in place (CSA &ORC MACRO, 2012).

In relation to examine the relationship of social, economic and demographic factors with the utilization of maternal health care service, the bivariate analyses results suggest that except birth order other social, economy and demographic predictor variables show statistically significant relationships with maternal health care services utilization used in this study, namely the use of antenatal care, place of delivery and assistance during delivery.

The findings of this study showed that the variables which had significant relationships with the utilization of maternal health care in the bivariate analysis did not consistently have significant impact on the outcome variables in the multivariate analysis. However, as in the bivariate analysis, in the multivariate regression analysis, *women's and husband's education, women autonomy, women's exposure to mass media, women's occupation and quality of health extension worker in respondent* opinion continued to be strong predictors of the use of maternal health care services.

A comparison of logistic regression analyses of selected indicators clearly shows that the log odds of woman exposure to media, quality of health extension worker in respondents opinion, women's and their husband's education, woman occupation and woman autonomy were much higher compared to the log odds of other selected variables in relation to utilization of all forms of maternal health care services.

Woman exposure to media exerts a stronger positive influence on the use of maternal health care utilization, the respondent who had access to information on advantage of MCHS utilized was more likely use maternal health care service utilization or any types of modern health care for their and their family member. Our findings have also been described in other studies in Indonesia (Sari K., 2009; Shariff and Singh 2002). So, lack of knowledge, awareness of the community, traditional believe with regard to health care was improved by through media event such as radio, television, written material and other community mobilization activity. The results show that the more frequently the women were exposed to mass media, the greater was their use MHCS.

The strong significant and positive association between MHC service utilization and educational level of respondent easily understood. This implies that women's education plays a critical role in using antenatal care service, formal facilities for the place of delivery and skilled birth attendants during delivery. Women's education appears to be a strong predictor related to the use of MHCS. The relationship was in the positive direction that educated women were more likely to use all kinds of modern maternal health care services than those who were not educated. This finding is consistent with findings from elsewhere (Mrisho et al, 2007, Thind et al, 2008, Shariff et al, 2002,

Edward et al, 2009,Gubhaju et al, 2003, Mesfin M and Farow J., 1996; Addai L., 1986; Yared M. 1998 and Niguss B., 2010).

There are a number of explanations for why education is a key determinant of maternal health care utilization. Woman's education is likely to enhance women's occupation and autonomy so that women develop greater confidence and capabilities to make decisions regarding their own health. Education also enables women to have better knowledge and information on modern medical treatment and have greater capacity to recognize specific illnesses. Education of mothers increases women's perceived seriousness about maternal morbidities and enhances knowledge regarding benefits of maternal health services. Education is likely to improve the general status of women and help them build up confidence to make decisions about their own health More educated women are more likely not to carry out bad traditional practices, to seek out higher quality services and have greater ability to use health care imputes that offer better care and to work for paid employment in the formal labour market after leaving school (Govindasamy et al., 1997; Yared et al., 2002).

With respect to husbands' education, women with educated husbands were found to be significantly more likely to use MHCS than women with not educated husbands. The results were consistent with in Indonesia (Sari K., 2009; Shariff and Singh 2002; Mrisho et al, 2007, B. Pembe et al, 2008).). One possible explanation for this result is that husbands can influence the wife's decision to seek modern health care services, the higher the educational level of husbands, the greater their influence in maternal and child-care decisions (Caldwell 1990).

Women with educated husbands were also found to be significantly more likely to use MHCS compared to women whose husbands had no education. The main reason for this could be that an educated husband could influence his family and wives positively. Firstly, He had reproductive health education on his formal education. Secondly, He could have better access to information through reading and following media about maternal health care. Consequently he could have better understanding about the advantages of maternal health care and pregnancy related complications.

Another social indicator that was significantly associated with the use of maternal health care services utilization was women's autonomy. In terms of women's decision making power, it has been found to have a strong relationship with the three forms maternal health care utilization. The result shows that the higher the autonomies women have greater utilization of maternal health care service utilization would be. Our findings have also been described in other studies (Bloom et. al 2001).

Women's occupation had strong positive correlation with a maternal health care. The current study also examined that women's work status (i.e. Housewives, or civil servant, merchant...) with maternal health care service utilization shows a strong and significant association. The results show that women different from housewives were more likely to use all three forms of maternal health care services. The finding is consistent with previous findings (Zenebe, 2011; Sari K., 2009 and Sharma et.al 2007). This may be because most of the women who were housewives had lower economic capacity and resultant lesser decision making power on the use of maternal health care service utilization.

In relation to the role of health extension workers in improving maternal health care, there was a positive and significant association between the respondents acknowledge the qualities/skill of health extension worker and maternal health care utilization. As of the respondent opinion increased, the use of all three maternal health care service utilization would also increase. The finding is consistent with previous findings (Yalem T., 2010).

The data showed that, in the past five years the trend of maternal health care service utilization in the health facilities was lower compare to services provided by TBAs, despite HEW were in place. A possible reason could be that during delivery assistance TBAs were more accepted by the community than HEWs because of the community perception, experience and traditional believes. In addition mothers might perceive that HEWs had no better knowledge and skills on delivery assistance than TBAs. The **FGDs** also showed that a possible reason could be that during delivery assistance TBAs were more accepted by the community than HEWs because of the community perception and, experience and Knowledge of HEWs improved by frequent on job trainings.

Based on the **FDGs** discussions, the deep rooted traditional, cultural and religion practices were negatively influencing the health seeking behavior of the mother. They perceived that the HF is only for obstructed and complicated labour. They strongly emphasized that the delivery was up to the willingness of God, not up to the continuous support of health professionals. It was also generally perceived that pregnancy and child birth were a normal phenomenon. They did not consider that it required special attention. This could be the explanation for why the majority of mothers gave birth at home and the reason for low maternal health care utilization.

CHAPTER SEVEN

7. SUMMERY, CONCLUSIONS AND RECOMMENDATIONS

7.1 Summery

Despite the progress that has been made at the country level in general and in the study area in particular in recent decades to improve maternal health outcomes, maternal mortality still remain high 871, 673 and 676 deaths per 100,000 live births in 2000, 2005 and 2011, respectively (CSA and ORC Macro, 201; 2006; CSA and ICF International, 2012). While many factors contribute to such maternal health outcomes, the lack of use of maternal health care services during pregnancy and delivery provided by well trained and well-equipped medical professionals is recognized as an important factor contributing to high maternal mortality in Ethiopia.

The utilization of antenatal care provided by health professional was low in study area; the utilization of delivery care at modern health facilities is low. the study showed that women in Boloso Sore Woreda were more likely to have births delivered at home. Traditional birth attendants (TBAs) still play a major role in assisting the delivery and in some province the percentage of using unskilled birth attendants is very high.

The FDRE government in collaboration with different NGOs has made several attempts to improve maternal health care by making maternal health care more accessible in kebele level, by improving service quality and making no service fee. However, the utilization of the health care requires voluntary participation from the women themselves to decide if they want to use these services or not. Thus, underutilization of maternal health care services, related to their attitudes, social influence and their self efficacy towards maternal health care usage. The attitudes, social influence and self efficacy of a woman depend on her social environment, economic condition and demographic characteristics.

As stated in the Chapter Two, this study has four objectives. The first objective is to examine the influence of women's and their husband's characteristics as well as the women's household variables on maternal health care utilization in Boloso Sore Woreda, Woliata Zone, SNNPR of Ethiopia. The second objective is to develop multivariate regression model to identify the most influential factors in explaining the use of maternal health care services. In addressing the first the second and third objectives, bivariate and multivariate analyses have been used.

The bivariate analysis has been based on tests of association (Chi-square tests) and the multivariate analysis has been based on logistic regression analysis. The forth objective of the study is to provide implications for future research and suggest possible policy direction and programs for improving maternal health care utilization based on the finding of the study. The major findings of this study is that among the socio-econ0mic and demographic determinants of maternal health care service utilization *women's and husband's education, women autonomy, women's exposure to mass media, women's occupation and quality of health extension worker in respondent* opinion continued to be strong predictors of the use of maternal health care services.

Finally; this study shows the importance of both demographic and socio-economic variables to utilization of MHC services. All three forms of maternal Health care; Antenatal care, delivery care and Skill assistance during delivery. were dominantly affected by socio-economic factors where as *women's and husband's education, women autonomy, women's exposure to mass media, women's occupation and quality of health extension worker in respondent* opinion had effect on utilization of MHC Service in Study area. Most of these findings were consistent with previous studies in Ethiopia and other parts of the world (Govindasamy et al., 1997; Rogan et al., 2004; Yared et al., 2002; Sari K., 2009).

7.2 Conclusions

This study shows that the most important determinants for the use of maternal health care services in the study area were demographic, socio-economic and cultural in nature. The demographic and socio-economic factors identified in this study include maternal and husbands education, age of woman and their husband, birth order, media exposure, distance to the nearest health facility, woman autonomy and occupation and quality of HEWs in respondents opinion.

The main goal of maternal health care service utilization is reducing maternal and infant mortality and morbidity (MDGs 4and 5). The study has revealed that mothers in the study area were not considerably utilizing ANC, institutional delivery and skilled birth attendants. According to the survey data, women in the study area were more likely to have births delivered at home. Traditional birth attendants (TBAs) still play a major role in assisting the delivery and the percentage of using unskilled birth attendants is very high.

The results from the bivariate analysis confirm that except birth order, other social, economic and demographic predictor variables show statistically significant relationships with all the three forms of maternal health care services utilization, namely, the use of antenatal care, place of delivery and assistance during delivery. In multivariate regression analysis, women's and husband's education, women autonomy, women's exposure to mass media, women's occupation and quality of health extension worker in view of the respondent continued to be strong predictors of the use of maternal health care services.

Therefore, from the above significantly associated demographic and socio- economic factors; woman exposure to media, quality of health extension worker in view of the respondent, women's and their husband's education, woman occupation and woman autonomy were the dominant factors that influence (both positively and negatively) the utilization of maternal health care services.

Currently the utilization of ANC is at the grass root level in the study area in spite of the fact that ANC services are being delivered free of charge to the women and are accessible to almost all women under study.

7.3 Recommendations

Policy makers and health planners need to recognize the socio-economic and demographic determinants of maternal health care service utilization. More emphasis should be given to educate mothers, to improve men involvement and strengthen community participation in maternal health care services utilization, to increase political commitment and to boost accessibility in maternal health care services

Since more than 80% of childbirths assisted by unskilled health professionals such as traditional birth attendants (TBAs) in the study area, the continuous training and upgrading of HEWs on the one hand and sending these HEWs to every health post as much as possible on the other hand would obviously improve maternal health care utilization since delivery complications are the main health problem which can lead to maternal death.

Health cadres, midwives, HEWs and other health care providers should motivate women these categories (have no education) to enable them be antenatal and delivery care users.

Since women with less exposure to mass media were found to have low use of maternal health care services, mass media campaigns promoting antenatal care, deliveries at health facilities and skilled birth attendance should be intensified, especially in rural areas. The government and other responsible bodies should make efforts to increase community based health education, awareness creation and improve better access to information for mothers regarding maternal health care.

Community participation should be strengthening through the implementation of health committees with collaboration of civil society and HEWs to motivate the community to seek maternal health care in the study area. Additionally involvement of communities' stakeholders on planning, implementing, monitoring and evaluation is important to create sense of ownership and belongingness.

Women's and husband's education was found to have an important effect on the utilization of maternal health care services suggesting that improving educational opportunity for women will have a large influence on improving the utilization of such services. However, this is a long term investment so that an alternative health programs should focus on attracting women with no education.

Since work status of woman is found to have high effect on maternal health utilization, both governmental and nongovernmental organizations should give special emphasis on providing loan to those housewives in order to generate the job opportunity for them in rural area.

The performance or quality of health extension workers in view of woman had considerable impact on maternal health care services utilization. In order to improve the skill of HEWs, special attention should be given to improve skill of HEWs by short and long term on the job training.

The finding of this study could be generally applicable to other areas of the region and country level, since there are some areas that are similar in demographic and socio-economic character. The identified problems could be useful in developing and implementing effective interventions to improve the utilization of maternal health care services at community level. It could help to improve maternal health and consequently reduce maternal deaths which would lead to achieve the MDG5 and hence need to be given a serious attention.

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Annex A.

Questionnaire for socio-economic and demographic determinants of maternal health care utilization

Hello, my name is_____. I am working in research team of Addis Ababa university college of Development Studies in the center for Population Studies. I am conducting a study on maternal health care utilization especially antenatal care, place of delivery and assistance during delivery. You are kindly requested to be included in the study; I appreciate if you participate in this survey and would like to ask you about your maternal health care utilization (MHCU) during your last pregnancy. The survey usually takes about 30 minutes to complete, whatever information you provide will be kept strictly confidential and will not be shown to other persons.

At this time, do you want to ask me anything about the survey?

May I begin the interview now? 1. Yes 2. No.

Name of the interviewer_____ signature_____

Date of interview_____

Name of the supervisor _____ signature_____

Date of supervision _____

1. Name of kebele_____
2. "Gott" _____
3. Household identification _____
4. Questionnaire code _____
5. House number _____
6. Date ___/___/_____E.C
7. Time of start of interview_____:_____local time
8. Time of end of interview _____ local time

SECTION 1: SOCIO-ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS.

No	Questions and filters	Coding category	skip
101	In what month and year were you born?	Month_____. Don't know month - - - - - - - - - 98 Year_____. Don't know year - - - - - - - - - 9998	
102	How old are You?	Age in completed years _____	
103	Have you ever attended school?	Yes - - - - - - - - - - - - - - - - - 1 No - - - - - - - - - - - - - - - - - 2	→106
104	What is the highest grade you completed?	Primary - - - - - - - - - - - - - 1 Secondary - - - - - - - - - - - - - - 2 Tech./Voc. Certificate - - - - - - - 3 Higher - - - - - - - - - - - - - - 4	→107
105	In this level what is the highest grad you completed and year?	Grad - - - - - - - - - - - - - - - - - - Year - - - - - - - - - - - - - - - - -	
106	Have you ever participated in a Basic Education Program or any other program that involves learning to read or write (not including primary school)?	Yes - - - - - - - - - - - - - - - - - 1 No - - - - - - - - - - - - - - - - - 2	
107	Do you read a newspaper or magazine almost every day, at least once a week, less than once a week or not at all?	Almost every day . . . . . 1 At least once a week . . . . . 2 Less than once a week . . . . . 3 Not at all 4	
108	Do you listen to the radio almost every day, at least once a week, less than once a week or not at all?	Almost every day . . . . . 1 At least once a week . . . . . 2 Less than once a week . . . . . 3 Not at all 4	
109	Do you watch television almost every day, at least once a week less than once a week or not at all?	Almost every day . . . . . 1 At least once a week . . . . . 2 Less than once a week . . . . . 3 Not at all 4	
110	What is your religion	Orthodox - - - - - - - - - - - - - - -1 Protestant - - - - - - - - - - - - - - - 2 Catholic - - - - - - - - - - - - - - - 3 Muslim - - - - - - - - - - - - - - - 4 Traditional - - - - - - - - - - - - - - 5 Other specify _____.	
111	What is your ethnicity	_____.	
112	Occupation?	House wife - - - - - - - - - - - - - - 1 Civil servant - - - - - - - - - - - - - - 2 Merchant - - - - - - - - - - - - - - 3 Student - - - - - - - - - - - - - - 4 Farmer - - - - - - - - - - - - - - 5 Other Specify_____.	

SECTION 2. REPRODUCTION

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
201	Now I would like to ask you about all the births you have had during your life. Have you ever given birth?	Yes ----------1 No ----------2 →	206
202	Do you have any son or daughters to whom you have given birth who are now living be with you?	Yes ----------1 No ----------2 →	204
203	How many sons live with you? And how many daughters live with you? If none, record '00'.	Sons at home _____. Daughters at home_____.	
204	Do you have any sons or daughters to whom you have given birth who are alive but do not live with you?	Yes . . .1 No . . . . . 2 →	206
205	How many sons are alive but do not live with you? And how many daughters are alive but do not live with you? If none, record '00'.	Sons elsewhere . . . . . . Daughters elsewhere-------.	
206	Have you ever given birth to a boy or girl who was born alive but later died? IF NO, PROBE: Any baby who cried or showed signs of life but did not survive?	Yes . . . . . 1 No . . . . . 2 →	208
207	How many boys have died? And how many girls have died?. If none, record '00'.	Boys dead . . . . . . Girls dead	
208	Sum answers to 203, 205, and 207, and enter if none, record '00'. total	Total _____.	
209	Are you pregnant now? current	Yes . . . . . 1 No . . . . . 2 Unsure . . . . . 8 →	212
210	How many months pregnant are you?	Months	
211	At the time you became pregnant did you want to become pregnant then;	Yes . . . . . 1 N o 2	
212	Did you want to wait until later, or did you not want to have any (more) children at all?	Later . . . . . 1 Not at all 3	
213	Have you ever had a pregnancy that miscarried, was aborted, or ended in a stillbirth?	Yes . . . . . 1 N o 2	
214	When did the last such pregnancy end?	Month . . . . . . Year	

SECTION 3: PREGNANCY, DELIVERY,

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
301	At the time you became pregnant with (NAME), did you want to become pregnant?	Yes ---------- 1 No ---------- 2	
302	Did you see anyone for antenatal care for this pregnancy?	Yes ---------- 1 No ---------- 2 →	315
303	Did you see anyone for antenatal care for this pregnancy? IF YES: Whom did you see? Anyone else? PROBE FOR THE TYPE OF PERSON AND RECORD ALL PERSONS SEEN.	**Health profession** Doctor ---------- 1 nurse/midwife ---------- 2 Health extension workers ---------- 3 Other health profession- ---------- 4 (specify) **Other person** Trend TBA ---------- 5 Un trend TBA ---------- 6 Volunteer Health worker ----------	
304	Where did you receive antenatal care for this pregnancy?	**Home** Your home ---------- 1 Other home ---------- 2 **Public sector** Govt. hospital ---------- 3 Govt. health center ---------- 4 Clinic ---------- 5 Govt. health post ---------- 6 Other public specify ---------- Non-govt. (ngo) health facility ------- **Private med. sector pvt.** Hospital ---------- 11 clinic ---------- 12 Other private med Specify _____. Other specifies _____.	303
305	How many months pregnant were you when you first received antenatal care for this pregnancy?	Months _____. Don't know 98	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
306	How many times did you receive antenatal care during this pregnancy?	Number of times. ---------- Not receive 98	
307	As part of your antenatal care during this pregnancy, were any of the following done at least once? Were you weighed? Was your blood pressure measured? Did you give a urine sample? Did you give a blood sample?	Yes No BP ..... 1 2 Urine ..... 1 2 Blood ... 1 2	
308	During (any of) your antenatal care visit(s), were you told about the signs of pregnancy complications?	Yes ..... 1 No ..... 2 Don't know 8	310
309	If yes, can you mention some of them? (More than one answer is possible) What else (circle the given answer and give rank)	Vaginal bleeding ---------- 1 High and speedy Vaginal bleeding -- 2 Savior headache ---------- 3 anemia ---------- 4 fiver ---------- 5 Abnormal fetal position ---------- 6 Others specify_____	
310	During this pregnancy, were you given an injection in the arm to prevent the baby from getting tetanus, that is, convulsions after birth?	Yes ---------- 1 No ---------- 2 Don't know ---------- 8	
310A	During this pregnancy, how many times did you get this tetanus injection?	Times _____. Don't know ---------- 8	
311	If you attended ANC, was health education given during each visit?	Yes ---------- 1 No ---------- 2 Don't know ---------- 3	
312	If health education was given, mostly on what topic?	ANC ---------- 1 F/P ---------- 2 Baby care ---------- 3 Breastfeeding ---------- 4 Don't remember ---------- 5 Other specify _____.	
313	Do you think that waiting time was a problem for attending ANC?	Yes ---------- 1 No ---------- 2	
314	How much time on average did it take to travel on foot form home to the health facility?	_____ minutes	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
315	If you did not attend ANC? Which one is the most reason?	No or little knowledge about ANC clinics ---------- 1 Being in a state of good health ------- 2 ANC clinic too far from my home ----- 3 Waiting time is too long at ANC ----- 4 Husband disapproval ---------- 5 Poor quality of the services ---------- 6 Because of religion ---------- 7 ANC. Attendance is useless --------- 8 Other specify _____.	
316	Where did you deliver your last child? Write the name of the place. Probe to identify Circle the appropriate code. (name of place)	**Home** Your home ---------- 1 Other home ---------- 2 **Public sector** Govt. hospital ---------- 3 Govt. health center ---------- 4 Clinic ---------- 5 Govt. health post ---------- 6 Other public specify ---------- Non-govt. (NGO) health facility ------- **Private med. sector pvt.** Hospital ---------- 7 clinic ---------- 8 Other private med Specify _____. Other specify _____.	
317	Who assisted with the delivery of (NAME)? Anyone else? Probe for the type of person and record all persons assisting. If respondent says no one assisted, probe to determine whether any adults were present at the delivery.	**Health profession** Doctor ---------- 1 nurse/midwife ---------- 2 Health extension workers ------ 3 Other health profession ------ 4 **Other person** Trend TBA ---------- 5 Un trend TBA ---------- 6 Volunteer Health worker ---------- 7 Other specify _____.	

NO	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
318	Why didn't you deliver in a health facility? give rank PROBE: Any other reason? RECORD ALL MENTIONED.	cost too much ---------- 1 facility not open ---------- 2 too far/ no transportation ----- -3 don't trust facility/poor quality service 4 no female provider at facility ------ 5 husband/family did not allow ------6 not necessary ---------- 7 not customary ---------- 8	
319	What is your feeling about the quality of ANC given?	very good ---------- 1 good ----------2 Satisfactory ----------3 Poor ----------4 very poor ----------5	
320	How do you rank the skill/technical capacity of health workers providing maternity health care services	very good ---------- 1 good ----------2 Satisfactory ----------3 Poor ----------4 very poor ----------5	

SECTION 4: HUSBAND'S BACKGROUND AND WOMAN'S

NO	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
401	How old was your husband/partner on his last birthday?	Age in completed years	806
402	Did your (last) husband/partner ever attend school?	Yes . . . . . 1 No 2	
403	What was the highest grade he completed?	Primary - - - - - - - - - - - - - - 1 Secondary - - - - - - - - - - - - - - 2 Tech./Voc. Certificate - - - - - - 3 Higher - - - - - - - - - - - - - 4	
404	In this level what is the highest grad you completed and year?	Grad - - - - - - - - - - - - - - - - - Year - - - - - - - - - - - - - - -	
405	Aside from your own housework, have you done any work in the last seven days?	Yes . . . . . 1 No. 2	→408
406	As you know, some women take up jobs for which they are paid in cash or kind. Others sell things, have a small business or work on the family farm or in the family business. In the last seven days, have you done any of these things or any other work?	Yes . . . . . 1 No. 2	→408
407	Although you did not work in the last seven days, do you have any job or business from which you were absent for leave, illness, vacation, maternity leave or any other such reason?	Yes . . . . . 1 No. 2	→411
408	Have you done any work in the last 12 months?	Yes . . . . . 1 No. 2	
409	What is your occupation, that is, what kind of work do you mainly do?	- - - - - - - - - - - - - - -	
410	Do you do this work for a member of your family, for someone else, or are you self-employed?	for family member . . . . . 1 for someone else . . . . . 2 self-employed 3	
411	who decides how the money you earn will be used: Mainly you, mainly your husband/partner, or you and your husband/partner jointly?	Respondent . .. . 1 husband/partner . . . . . 2 respondent and husband/partner jointly . . . . 3 other 6	
412	Would you say that the money that you bring into the household is more than what your husband/partner brings in, less than what he brings in, or about the same?	More than him . . . . . 1 less than him . . . . . 2 about the same . . . . . 3 husband/partner doesn't bring in any money . . . . . 4 don't know 8	

NO	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
413	who decides how your husband's/partner's earnings will be used: mainly you, mainly your husband/partner, or you and your husband/partner jointly?	Respondent . . . . . 1 husband/partner . . . . . 2 respondents and Husband/partner jointly . . . . . 3 Husband/partner doesn't bring in any money . . . . . 4 Other 6	
414	Who usually makes decisions about health care for yourself: mainly you, mainly your husband/partner, you and your husband/partner jointly, or someone else?	Respondent - - - - - - - - - - - - - 1 husband/partner - - - - - - - - - - -2 respondent & husband/ partner jointly .....3 someone else ..... 4 other - - - - - - - - - - - - -	
415	Decides on making large household purchase	Respondent - - - - - - - - - - - - - 1 respondent & husband/partner jointly ----------2 someone else ----------3 other - - - - - - - - - - - - -	
416	Decides on visiting other families and relatives	Respondent - - - - - - - - - - - - - 1 husband/partner - - - - - - - - - - -2 respondent & husband/partner jointly ----------3 someone else ---------- 4 other - - - - - - - - - - - - -	
417	Decides on kinds of food should be cooked every day	Yes . . . . . 1 No. 2	

Annex B.

SECTION 5: ENGLISH FOCUS GROUP DISCUSSION FGD GUIDE

Objective of the discussion: *To explore the community's understand and perceptions of Antenatal care utilization and preference to place of delivery and assistance during delivery in* ***Boloso Sore*** *woreda*

1. Next we would like to hear a little about your experience or knowledge about antenatal care, place of delivery and assistance during delivery.

- Who can tell us about antennal, delivery and assistance during delivery? - Is there any health education given about ANC, DC and how much is its importance?
- Who would like to tell us dangerous health problems related to pregnancy and childbirth and its cause, consequences and prevention methods? Pregnancy related risks and antenatal care

2. Now we would like to ask you specific questions about health problems related pregnancy and childbirth.

2.1. Do you think that a healthy pregnant woman should attend ANC? Why? 2.2. Where do you think is the best place for ANC? Why?

3. In your view what are the primary reasons for pregnant women not attend ANC clinics?

4. What are the primary reasons pregnant women should attend ANC clinics? 5. Where do you think the best place for delivering a child? Why?

6. Who do think the best person to assist during delivery? Why? What else?

7. What is your opinion about ANC, and preferences to place of delivery from local cultural and religion point of view?

8. Which groups of the population do you expect not to utilize the services and what are their reasons?

9. Do you think a health extension worker has a great role in maternal health care? Why?

9.1 do you have discussion of women with health Extension workers about maternal health care. Mainly on what topics? What else?

10. In your opinion what are the benefits of ANC?

11. What is the main reason of home delivery?

Annex C.

A/ antenatal care

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	3.772	8	.877

B/ assistance during delivery

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	9.293	8	.318

Collinearity Statistics		
Variable	Tolerance	VIF
Age of husband	.726	1.378
Husband education	.835	1.198
Education of husband	.629	1.589
Quality of HEW	.890	1.124
Media exposure	.717	1.395
Distance in km	.926	1.080
Woman autonomy	.947	1.056
Woman's working status	.856	1.168
Age in three groups	.716	1.396
Number of children	.774	1.292

Declaration

I, W/senbet Asrat, do hereby declare to Addis Ababa University School of Graduate Studies that this thesis is a product of my original research work, and it has not been submitted to any other university for any academic degree. Materials and information other than my own are duly acknowledged.

Name: W/senbet Asrat Signature: _____

Place: Center for Population Studies, Addis Ababa University

Date: June 2012

As the principal thesis advisor, I herby certify that I have critically read and evaluated this thesis entitled "*Socio-Economic and Demographic Determinants of Maternal Health Care Utilization In Boloso Sore Woreda, Wolaita Zone, SNNPR*". I recommend that this thesis submitted as a fulfillment for the requirements of Masters of Science in Populations Studies is defendable.

Name: _____

Signature: _____

Date: _____