ADDIS ABABA UNIVERSITY
COLLEGE OF DEVELOPMENT STUDIES
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DETERMINANTS OF MATERNAL HEALTH CARE UTILIZATION IN HOLETA TOWN, WEST SHEWA ZONE OF OROMIA REGION, ETHIOPIA

A Thesis Submitted to the School of Graduate Studies of Addis Ababa University in Partial Fulfillment of the Requirements for the Degree of Master of Science in Population Studies

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This is to certify that the thesis prepared by **Kidist Birmeta** entitled: "***Determinants of Maternal Health Care Utilization in Holeta Town, West Shewa Zone of Oromiya Region, 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 accepts standards with respect to originality and quality.

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ABSTRACT

Determinants of Maternal Health Care Utilization in Holeta Town, West Shewa Zone of Oromia Region, Ethiopia

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In developing countries a large number of women are dying due to factors related to pregnancy and child birth. Implementing and assuring utilization of maternal health care services is potentially one of the most effective health interventions for preventing maternal morbidity and mortality. However, in Ethiopia the utilization of antenatal and delivery care is low.

A cross-sectional study were conducted from January 20 to February 20, 2012 in Holeta town, West Shewa Zone of Oromia Region to assess the determinants of maternal health care utilization among women of child bearing age and have given birth in the past three years prior to the survey.

Structured questionnaire and focus group discussions were used for data collection. Data were collected from randomly selected four Kebeles and a total of 419 respondents were included in the study. The data were entered, cleaned, edited, and analyzed using SPSS window version 17. Descriptive, bivariate and multivariate logistic regression analyses were conducted and odds ratios were calculated using two logistic regression models (ANC and DC) to control confounders. Statistical tests were done at a level of significance of $p < 0.05$.

The study revealed that about 87.1 % of the women had at least one antenatal visit during their last pregnancy. More than half of the ANC attendants made their first visit during their second and third trimester of pregnancy. Among ANC users 34% had less than four ANC contacts. There was a significant association ($P<0.05$) between ANC attendance and some demographic, socio-economic and health related factors (age at last birth, literacy status of women, average monthly family income, media exposure, attitude towards pregnancy, knowledge on danger signs of pregnancy and presence of husband approval on ANC). The study also revealed that about 61.6% of the women had given birth in the health institutions. Out of all 161(38.4%) home deliveries only seven (4%) of the births were assisted by health worker but (94%) were assisted by TBAs, close relatives/ Friends, Neighbors and TTBA. Parity, literacy status of women, average monthly family income, media exposure, decision where to give birth, perception of distance to HI and ANC attendance were found to be significantly associated ($P<0.05$) with DC attendance.

The utilization of ANC and DC service is inadequate in the town. The utilization of ANC and DC were influenced by demographic, socio-economic and health related factors. Improving the status of women by expanding educational opportunities, strengthening promotion of antenatal and delivery care by enhancing the community awareness about the importance of ANC with early visit and DC are recommended to bring better ANC and DC services utilization in the town.

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LIST OF ABBRIVATIONS

AIDS	Acquired Immunodeficiency Syndrome
ANC	Anti Natal Care
CI	Confidence Interval
CSA	Central Statistics Agency
DC	Delivery Care
EDHS	Ethiopian Demographic and Health Survey
EHNRI	Ethiopian Health Nutrition Research Institute
FGD	Focus Group Discussions
FMOH	Federal Ministry of Health
MOH	Ministry of Health
HEP	Health Extension Program
HEWs	Health Extension Workers
HI	Health Institution
HID	Health Institution Delivery
HIV	Human Immunodeficiency Virus
ICPD	International Conference on Population and Development
MDG	Millennium Development Goal
MHC	Maternal Health Care
MMR	Maternal Mortality rate
OR	Odd Ratio
PMTCT	Prevention of Mother to Child Transmission
RC	Reference Category
SNNPR	South Nations Nationalities and people Region
SPSS	Statistical Packages for Social Sciences
TBA	Traditional Birth Attendant
TTBA	Trained Traditional Birth Attendant
UN	United Nation
UNFPA	United Nation Fund for Population Affairs
UNICEF	United Nations Children Fund
USAID	United States Agency for International Development
VIF	Variance Inflation Factor
WHO	World Health Organization

CHAPTER ONE

1. INTRODUCTION

1.1. Background

Promoting maternal health care has been one of the major priorities in the world because of a great difference in the status of mother's well being between the developed and the developing countries. In developed nations, giving birth is a positive and fulfilling experience. Where as, for many women in developing countries it is associated with suffering, ill health and even death (WHO, 2008).

Globally, an estimated 358,000 maternal deaths occurred in 2008. Among the 358,000 maternal deaths in the world developing countries accounted for 99% (355,000) of deaths. Nearly three fifth of the maternal deaths occurred in the sub-Saharan Africa region alone, followed by South Asia (109,000), thus, sub-Saharan Africa and south Asia accounted for 87% (313,000) of global maternal deaths. Among the developing regions, Sub-Saharan Africa had the highest maternal mortality ratio (MMR) at 640 maternal deaths per 100,000 live births, followed by South Asia 280 maternal deaths in 2008 (WHO, 2010).

In many developing countries, poor maternal conditions rank the fourth in leading the cause of death for women death worldwide, after HIV/AIDS, malaria, and tuberculosis (WHO, 2007). The chances of a woman dying in pregnancy or childbirth is one in 14 in Somalia and one in 31 in sub-Saharan Africa, compared with just one in 15,200 in Italy and one in 4,200 in Europe (WHO,2010).

Because of this alarming problem increasing attention has been given to maternal health in reducing maternal mortality. International Conference on Population and Development (ICPD) which was held in 1994 called for reducing maternal mortality to one half of the 1990 levels by 2000 and a further one-half reduction by 2015 (UNFPA, 2004). Improving maternal health (MDG5) was also a main concern in 2000. Within the MDG the international community committed itself to reduce the maternal mortality ratio (MMR) by three quarters between 1990 and 2015 (UN, 2008).

Many countries have made significant progress in improving maternal health care services. However, discrepancies continue to exist in accessing to maternal health care between the more developed and developing countries. According to report by WHO at the global level, the average annual percentage decline in the MMR between 1990 and 2008 was 2.3 %. Oceania and sub-Saharan Africa have made the least progress at 1.4% and 1.7%, respectively annually between 1990 and 2008 far below the 5.5% annual decline, which is necessary to achieve the fifth MDG, concerning maternal mortality reduction (WHO, 2010).

Maternal and neonatal morbidity and mortality rates in Ethiopia are among the highest in the World. According to WHO 2010 report in Ethiopia 14,000 maternal deaths occurred in 2008 (WHO, 2010). The 2011 Ethiopian Demographic and Health Survey showed that the maternal mortality ratio was 676 deaths per 100,000 live births. In other words, for every 1,000 live births in, about seven women (6.76) died during pregnancy, childbirth, or within two months of childbirth. The ratio does not show significant different from report in the 2005 EDHS which was 673 deaths per 100,000 live births. According to 2011 EDHS maternal deaths account for 30 percent of all deaths to women of age 15-49. The neonatal mortality rate was 37 deaths per 1,000 live births; the post-neonatal mortality rate was 22 deaths per 1,000 live births (CSA & ORC Macro, 2006 and CSA and ICF, 2012).

1.2. Statement of the problem

Women's health issues have attained higher international visibility and renewed political commitment in recent decades. While targeted policies and programs have enabled women to lead healthier lives, significant health problems associated with women remain in developing countries with limited access to education or employment, high illiteracy rates and increasing poverty levels are making health improvements for women exceedingly difficult.

The health of families and communities are tied to the health of women. The illness or death of a woman has serious and far reaching consequences for the health of her children, family and community (UNFPA, 2004). Causes of maternal morbidity, deaths and disabilities also affect the survival and health of new born infants. Every year, on average, nearly four million new born babies and millions more are disabled because of inadequately managed pregnancies and deliveries, and women's poor health and poor nutritional status (UNFPA, 2004). When a

mother dies, her children's survival is threatened. Infants of mothers who do not survive delivery are more likely to die within two years (USAID, 2002).

For every death of woman associated with maternal cases, at least 20 more suffer injury, infection or disability, approximately seven million women every year (WHO, 2005). Seventy-five percent of maternal deaths occur during childbirth and the postpartum period, and the vast majority of maternal deaths and injuries are avoidable when women have access to health care before, during and after childbirth (UN 2007 and World Bank, 2007).

Most maternal deaths and injuries are caused by biological processes, not from disease, which can be prevented and have been largely eradicated in the developed world while in the developing countries leads to a death and various consequences. According to WHO and UNICEF the main proximate causes of maternal mortality include hemorrhage, infection, unsafe abortions, eclampsia / hypertension, and obstructed labor (WHO & UNICEF, 2004).

Maternal health care service is potentially one of the most effective health interventions for preventing maternal morbidity and mortality in particular in places where the general health status of women is poor. In addition MHC gives opportunities for delivering health information and services that can significantly promote the health of the women and their infants but in developing countries like Ethiopia the potential to deliver health information and services using MHC still remains underutilized.

In Ethiopia, one explanation for poor health outcomes among women is the non use of modern health care service by a great proportion of women in the country (Mekonen & Mekonen, 2003). According to the 2011 EDHS the coverage of antenatal care women received from a skilled provider at least once for their last birth in has increase from 28% in 2005 to 34% in 2011 but still inadequate. One woman in every five (19 percent) made four or more antenatal care visits during the course of her pregnancy and the median duration of pregnancy at the time of the first antenatal visit is 5.2 months. Regional differences in the use of antenatal care are quite significant according to the 2011 EDHS urban women are almost three times more likely than rural women to receive ANC from a skilled provider. Seventy six percent of women residing in urban areas received ANC services from a skilled provider for their last birth

compared with 26 percent of women in rural (CSA & ORC Macro, 2006 and CSA and ICF, 2012). Such levels of service coverage are considered low even by sub-Saharan standards.

A large majority of the births (90%) in Ethiopia occur at home, where health care operators (public and private) served only 10% birth of mothers. Nine women in every ten deliver at home, in addition, when considering assistant during delivery, only 10% of births are delivered with the assistance of a trained health professional. Twenty-eight percent of births were assisted by a traditional birth attendant, 57 percent of births were assisted by a relative, or some other person while 4 percent of births were unattended (CSA & ORC Macro, 2006 and CSA and ICF, 2012).

MHC utilization in Oromia Region is also low as many other parts in the country, only 31.1 percent of women received antenatal care and 8.1 percent of the births delivered by skilled provider while 91.9 percent of births taken place at home (CSA and ICF, 2012).

The rural urban MHC service seeking behavior difference is a concrete realty. Holeta town which found in Oromia region is a semi urban area, which is not yet developed in general infrastructure including health services even if the town is close to the capital city of Ethiopia. Hence considering global and national interests in the Millennium Development Goal and Ethiopia's high level of maternal mortality and for appropriate intervention, understanding the factors affecting maternal health care use and level of MHC service utilization is crucial. There fore, an attempt is made in this study to understand the factors that determine utilization of maternal health care (ANC and DC) services in the study area. There fore the paper aimed to fill the gaps using the data that will be obtained from the primary data sources.

1.3. Significance of the Study

The alarming rate of maternal mortality in developing countries in general, and in Ethiopia in particular is partly explained by the fact that fewer women receive maternal health care. Therefore, it would be reasonable to study such topics to address the factors determining maternal health care utilization.

The result of this study identifies the main determinants of the utilization of maternity care services in Holeta town. If effective implementation is done to avoid the investigated

determinants to utilization of MHC services it benefits the society, particularly women and children to have a better utilization of MHC services which will improve their health status and wellbeing. The findings also help governmental and non-governmental organizations in planning and implementing programs to reduce maternal morbidity and mortality in the study area. Since the demographic, socio-economic, personality and health related factors have a strong impact on MHC service utilization, the study can serve as a spring board for those who are interested to extend it for further investigation in depth.

1.4. Objectives of the study

General objectives

The **general objective** of this study is to examine the determinants of maternal health care service utilization among women of Holeta town, west Shewa Zone of Oromia region, Ethiopia.

Specific objectives

1. To asses the magnitude of antenatal and delivery care service utilization among women in Holeta town.
2. To describe the knowledge and attitude of women regarding antenatal and delivery care services in Holeta town.
3. To investigate determinants of antenatal and delivery care service utilization in the study area.
4. To asses the effect of ANC attendance on the DC utilization.

1.5. Research questions

1. What is the status of maternal health care utilization in the study area?
2. What is women's knowledge and attitude regarding antenatal and delivery care services in the study area?
3. What factors influence utilization of maternal health care services?
4. Does attending ANC increase the utilization of Delivery Care?

1.6. Limitations of the Study

I. Since the study included three year retrospective cross-sectional data, the possibility of recall bias and misreporting of events was likely to happen.
II. Since the design is cross sectional temporal relations could not be assessed.
III. The study also did not include the rural population which may affect it's generalizeability to large area.

1.7. Definition of Terms/Concepts

Antenatal care attended: If the women had received antenatal care checkup at least once during their pregnancy from health professionals.

Antenatal care non-attended: A women who had not attended antenatal care at all during the recent pregnancy.

Delivery care: the service given for pregnant women during labour, management of normal delivery and detection of complications, management of risk cases, in this study delivery care considered the delivery took place at formal public and private facilities by health professionals.

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.

Traditional birth attendant: - is who initially had acquired her ability by delivering babies by herself or through apprenticeships to other TBAs.

Better knowledge: - those women who are able to name two or more of the accepted danger signs of pregnancy.

Poor knowledge: - those women who are able to name one or none of the accepted danger signs of pregnancy.

Husband: -the term husband is used to refer both husbands and partners.

CHAPTER TWO

2. Review of Related Literature and Conceptual Framework

2.1. Maternal health care

Maternal health care encompasses the health care dimensions of family planning, preconception, antenatal, and postnatal care in order to reduce maternal morbidity and mortality. Preconception care can include education, health promotion, screening and other interventions among women of reproductive age to reduce risk factors that might affect future pregnancies www.who.int/topics/maternal_health.

According to the ICPD program of action, maternal health care services should include education on safe motherhood; effective and focused antenatal 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).

Women's knowledge and acceptance of the importance of maternal health care and healthy pregnancy practices are shaped by previous experiences as well as formal and informal communication within the community and households. Many women who utilized maternal health services believed it was important as a means of reducing the risks of complications and ensuring the health of the unborn child. Women often those who delivered healthy babies praised the quality of care and attention they received during pregnancy and delivery, noting the importance of receiving vitamins, vaccinations, and examinations during pregnancy and the benefits of such care in regard to the healthy delivery of the new baby.

2.1.1. Antenatal care

Antenatal care is one of the components of maternal health care. It is "care before birth", and includes education, counseling, screening and treatment to monitor and to promote the well-being of both the mother and foetus (Di Mario et al., 2005). Antenatal care provides an important entry point for women to the health care system. It presents an opportunity to assess

the future mother's overall condition, diagnose and treat infections, screen for anaemia and HIV/AIDS, enroll women in programmes to prevent transmission of HIV to infants, and prevent low birth weight. Antenatal care is also associated with fewer and lower rates of antenatal, neonatal, infant and child mortality (Donaldson and Billy, 1989).

Antenatal care is an effective health intervention tool for reducing the risk of maternal morbidity and mortality, particularly in places where the general health status of women is poor. Studies indicate that the risk of maternal morbidity and mortality is significantly higher among women who do not receive antenatal health care services compared to women who do so (Royston and Armstrong, 1989).

The WHO technical working group has recommended a minimum level of care to be four visits through out the pregnancy. The first visit which is expected to screen and treat anemia, syphilis, screen for risk factors and medical conditions that can be best dealt with in early pregnancy and initiate prophylaxis if required. The second, third and fourth visits are scheduled at 24-28, 32 and 36 weeks, respectively (UNFPA, 2004).

Eighty percent women in the developing world receive at least one antenatal visits during pregnancy regional average range from around 70% in south Asia and west central Africa to over 90% in Latin America and the Caribbean. Majority of pregnant women at least 8 in 10 in all developing regions receive antenatal care from a skilled health professional (UNICEF, 2012).

Coverage of the recommended minimum of four or more antenatal care visits is still low in developing countries. Just over half of all pregnant women in developing countries receive the minimum recommended four antenatal visits (UNICEF, 2012). Women with secondary schooling are two to three times more likely to receive antenatal care as women with no education. Poor women, too, are far less likely to receive antenatal care, as with all health services (WHO/UNICEF, 2003).

The achievement from expanded antenatal health care utilization is greatest in countries such as Ethiopia where fertility and mortality are high. According to the 2011 EDHS, 34 percent of mothers received ANC from health professionals. There are large differences between urban

(76%) and rural (26%) in utilization of ANC service (CSA and ICF, 2012). In another study conducted by EHNRI in 2009/10 indicate that over half of all women (59 percent) received ANC from a trained provider. This was much higher for urban areas (89 percent) compared to rural areas (48 percent).

2.1.2. Delivery care

Delivery care is an important component of efforts to reduce the health risks of mothers and children by increasing the proportion of babies delivered under the supervision of health professionals in different health institution (public hospitals, private hospitals or other health care institutions).

Provision for adequate medical attention during delivery is important for the well-being of mother and child. Proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections that may cause death or serious illness to either the mother or the baby or both. Absence of such care and lack of hygienic conditions at the time of birth may lead to complications that would increase the risk of death of the mother or child or both (Shanna et al., 2004 and UNFPA, 2004). Though most women experience no major problems during labor and delivery, complications that do occur can be unpredictable and in sudden onset, requires immediate action from health professionals.

Childbirth in a health facility while attended to by trained health professional has been shown to be associated with lower rates of maternal and neonatal mortality and morbidity compared to home births. Because skilled attendant who is a one professionally trained health worker usually a doctor, midwife or nurse with the skills 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. A skilled attendant can influence maternal mortality by utilizing safe and hygienic techniques during delivery. However, these measures will not prevent most life-threatening infections, which are due to delayed treatment of complications such as prolonged labour, ruptured uterus or retained products (WHO, 1999).

In developing world only 63% of Births are attended by skilled health workers including midwives as well as doctors and nurses with midwifery skills up from 53% in 1990 (WHO, 2010). The percentage of births attended by skilled health workers remains even lower in Southern Asia (45%) and sub-Saharan Africa (46%), the two regions with the greatest number of maternal deaths (UN, 2010).

According to 2011 EDHS in Ethiopia only 10 percent of births are delivered with the assistance of a skilled provider, 57 percent of births were assisted by a relative, or some other person, twenty-eight percent of births were assisted by a traditional birth attendant, while 4 percent of births were unattended. 50.8% of urban mothers were attended by a health professional and compared with 4 percent of births to rural women. 83.9% mothers residing in Addis Ababa are the most likely to be attended to at delivery by a health professional compared with mothers of other regions (CSA and ICF, 2012).

According to 2011 EDHS delivery in a health facility is more common among births to mothers of age 20-34, births to mothers who had at least four ANC visits, and births to highly educated mothers and mothers in the highest wealth quintiles. The percentage of births delivered in health facility ranges from less than 10 percent in SNNPR, Affar, Oromiya, Somalia, and Benishangul-Gumuz regions to 82 percent in Addis Ababa. (CSA and ICF, 2012) The FMOH report in 2007 showed that out of 2,753,434 deliveries, 16.4 percent took place at health facilities, 7.3 percent deliveries were attended by health extension workers (FMOH, 2006/07).

In other study conducted 2009/10 by Ethiopian Health and Nutrition Research Institute (EHNRI), indicate that 84 percent of all women delivering at home. Forty six percent of urban women delivered at a government hospital or clinic while among rural women, 96 percent delivered at home.

2.2. Determinants of maternal health care (ANC and DC) service utilization

2.2.1. Demographic and socio-economic determinants of ANC and DC utilization

The considerable variation in maternal and child health in the developing world is believed to be partly due to differences in the availability of and access to health services. Although several studies have been carried out to identify and understand why maternal health care services are underutilized in developing countries, there is no universal explanation that applies to all places and time the determinants of utilization of maternal health care services are not the same across socio-demographic and cultural contexts (Nancy et al., 1999).

In developing countries the use of modern health care such as maternal health care services can be influenced by demographic, socio- economic characteristics of women, the cultural context, and the accessibility of these services. Among the number of socio-economic and demographic factors that are found to have effect on the utilization of maternal health seeking behavior includes age at last birth, literacy status, ethnicity, occupation, religion, marital status, average monthly family income, family size, women's exposure to media, and perception of distance to HI which have been examined as determinants of health care utilization.

Women's age may sometimes serve as a proxy for women's accumulated knowledge of health care services, which may have a positive influence on the use of health services. A study conducted in Nepal gave result that women over the age of 35 are less likely to utilize antenatal care but more likely to utilize delivery and postnatal care (Sharma et al., 2007). Another study made in Indonesia revealed that lowest percentage of women using maternal health care services were those aged 15-19. Being young indicates, to some extent, a lack of knowledge regarding the importance of using antenatal and also delivery care and stated older women are more likely to seek maternal health care services than younger women (Kistiana, 2009). However, a study in Bangladesh indicated that type of assistance utilized at delivery does not differ significantly with the age of the mother (Paul and Ramsey, 2002).

Economic status of household is the most important factor to differentiate the utilization of maternal health care service (Nigussie et al., 2004, K.M Mustanzur Ranman, 2009; Nigussie et al., 2004 and CSA and ICF, 2012). Even when formal fees are low or non-existent, poor

women often face expenses of transport, drugs, and food or lodging for women for delivering and other pregnancy related emergencies.

According to the 2005 EDHS, the proportion of women who received ANC and DC is greatest among those in the highest wealth quintile (75 percent), and decreases with each wealth quintile to a low of 17 percent among women in the lowest wealth quintile (CSA and ORC Macro, 2006).

The findings of the different study supports that education is strong predictor of maternal health care utilization (Irma, 1992; Mekonen and Mekonen, 2002 and Zeine et al., 2010). The study made in Indonesia revealed that women with secondary or higher education were almost four times as likely to use formal place for delivery as women with no education (Kistiana, 2009). In Ethiopia, finding form analysis of 2011 EDHS, mothers' educational status is highly correlated with whether delivery is assisted by a health professional and whether the birth is delivered in a health facility. For example, five percent of births to mothers with no education were attended by a health professional and delivered in a health facility compared with 69.9 percent of births to mothers with some secondary education similarly ANC among women with no education is 21.1 percent while 90.9 percent of women with more than secondary education received ANC (CSA and ICF, 2012).

Several studies found that accessibility of health care services, especially in developing countries, plays an important role in the utilization of these services (Mekonen and Mekonen, 2002 and Mekonen, 2003). According to a household survey in Southern Iraq, the relationship between utilization and distance between health unit and place of residence has shown that utilization rates decline sharply with increasing distance traveled (Habib and Vaugan ,1986). However study conducted in India show maternal health care utilization has no association with accessibility (Chandiok, 2006).

In another study conducted in Yem special Woreda distance were found to be independent predictors of antenatal care service utilization where women who live within an hour walking distance from the health facility were about eight times more likely to visit antenatal care than above an hour distance by walking (AOR=8.80, 95%CI; 4.85, 15.96). Consequently, in this study more than half (54%) of the users received the antenatal care services from health posts,

which are within easy reach (Tewodros, 2009). Other studies have also reported that distance or time required to reach the nearest health unit is an important barrier to maternal health care utilization (Jira and Belachew, 2005 and Pierre, 2005)

In Ethiopia health care systems and other infrastructure are weak reproductive health, like most aspects of health in Ethiopia, is generally poor, with significant regional disparities in access to services and in health outcome. Weak infrastructure and limited distribution systems in low income countries complicate access to health services especially in rural area. Poor health coverage is of particular concern in rural Ethiopia, where access to any type of modern health institution is limited at best. Health systems and roads are under developed, and transportation problems are sever, especially during rainy season (World Bank, 2001).

2.2.2. Obstetric factors

Several studies identified that obstetric factors including mother's parity affect utilization of MHC services and the use of ANC also found to have a positive relation in utilizing delivery care (Nigussie et al., 2004; Fenta, 2005 and Tewodros et al., 2009).

Parity is found to have associations with MHC utilization. There is significant reduction in maternal health service utilization increase with parity (Champman, 2003). Study done in Bangladesh, reported that parity seems U-shaped. There is an increase in utilization of ANC at beginning and high parity but decline at the medium numbers of parity (Chakrborty, 2003).

The study conducted in Ethiopia revealed that the effect of parity differs for antenatal and delivery care services. This study shows that among urban women, utilization of antenatal care is higher for those with two or more children than for those with only one child. On the other hand, utilization of delivery care services is lower for those with two or more children than those with one child (Mekonen and Mekonen, 2002).

Studies indicates that ANC attendance increase the chance of health facility delivery because women who were informed about pregnancy complications during antenatal care were more likely to use health facilities for delivery (Fenta, 2005 and Zewdie, 2009). The study in Gonder indicates that antenatal visit is a strong predictor of safe delivery services utilization. Women

who did not have any registered antenatal visit were less likely to give birth at health facilities (Nigussie et.al. 2004).

2.2.3. Women's decision making power and Cultural Practices

Mostly, in many parts of developing countries women's decision-making power is extremely limited, particularly in matters of reproduction and sexuality. Women with decision making power in the household, and access to education and economic opportunities are better able to get and use services before, during, and after pregnancy and childbirth. In Burkina Faso, Mali and Nigeria, for example, almost 75 percent of women reported that husbands alone make decisions about women's health care; in the two South Asia countries, Bangladesh and Nepal, this ratio was around 50 percent. This exclusion compromises the health and well being of all family members, particularly women and children (UNICEF, 2007). In this regard, decisions about maternal health care are often made by husbands or other family members. In Bangladesh, it is usually the husband (mother in law) who makes decision to seek or not to seek care (Navaneetham and Dharmalingamb, 2002). Similarly in Pakistan, for example, a study found that 2/3 of women delivered at home because of the husbands or other family members forbid health institution delivery (Kwast, 1992).

The role of traditional and religious beliefs as well as the perception of women with regards to comparative efficacy of the medical versus traditional birth attendants may also be contributory to failure to utilization of MHC. As Addai pointed out, modern medical and indigenous maternal health care services coexist in most African communities, particularly in rural areas, and women may have to choose between the two options (Addai, 1998). When obstetric complications are seen as the reflection of the "will of God" or the influence of evil sprits, families often resort to traditional healers and diviners for care, and only take women to health facility at last resort when it may be too late.

2.2.4. Psychosocial and personality factors

The individual's cultural environment provides a strong influence on the extent to which these factors can lead to the use of health services. The person's health behavior can be changed, by changing one's attitudes, perception of social norms, and social support and self efficacy expectations (Amooti-Kaguna and Nuwaha, 2000).

A women's attitude towards her pregnancy (whether the pregnancy wanted or not) and the presence of social support have been found to influence ANC use in developing countries (Stock, 1983). Research on the use of antenatal care tends to focus on women's characteristics, including whether or not the pregnancy was planned. In the U.S., a comparative study found that women with inadequate or no ANC visits had more negative attitudes about being pregnant and the importance of ANC than did those who had adequate care (Pagal, 1990).

In Ethiopia, there are few studies that revealed the various psychosocial and personal barriers to women's use of MHC. In one study conducted at Yirgalem and Jimma towns found that women who wanted their last pregnancy were found to be 50 percent more likely to use antinatal care than women who did not want their pregnancy (Belay et al., 2006). In another study conducted in Yem special Woreda showed that women whose recent pregnancy was wanted were more likely to use ANC than those women who had unplanned pregnancy (AOR=4.14, 95%CI; 2.18, 7.85) (Tewodros et al., 2009).

Presence of Husband approval on maternal health care utilization also found to associate in increasing maternal health care utilization (Tewodros et al., 2009 and Fenta, 2005). A community-based study carried out in Addis Ababa showed that the risk of non-attendance was high for pregnant women whose husband's attitude was negative or unknown (Fantahun, 1992). Another study in Yirgalem and Jimma towns also revealed that women married to men who approved of antenatal care were over twice as likely to use antenatal care during their last pregnancy as women whose husbands did not approve of prenatal care (Belay et al., 2006).

2.2.5. Need, perceived morbidity and knowledge on unhealthy pregnancy

Health care utilization is strongly affected by the characteristics of the illness as perceived by the individual and need. The perceived severity and etiology of the disorder will shape the decision to seek care. The most important factor for all is the severity of patient's disease or need (MOH, 1996).

In Ethiopia in one study conducted in Yem special Woreda revealed that illness experienced in past pregnancies and perceived susceptibility to illnesses in pregnancy were among the factors associated with antenatal care utilization (Tewodros et al., 2009).

Studies show that knowledge on the danger signs of pregnancy is also associated with utilization of MHC. In many developing countries most women lack knowledge on risks of pregnancy and childbirth, which in turn influences the felt need for MHC. Study in Tanzania showed that the proportion of women with skilled care at delivery increased with knowledge of danger sign from 39 percent among women who did not mention any to 68 percent among who did mentioned four almost or more danger signs (Rose et al., 2007).

Studies from developing countries showed that not only does women's knowledge of risks affect their use of ANC, but also does their knowledge of the severity of risks and their feeling of susceptibility to those risks. In India for instance, it has been demonstrated that lack of recognition of health problems was significant reason for not seeking out side health care that accounted for half of maternal death (Bhatia, 1986).

2.3 Conceptual Model

Anderson's behavioral model of health services utilization has been used extensively in both developing and developed countries. According to this model, individual's access to and use of health services is considered to be a function of three characteristics.

These are predisposing, enabling and need factors. The predisposing factors refer to those which shape attitudes toward service use (The socio cultural characteristics of individuals that exist prior to their illness) , enabling factors refer to resources or characteristics that promote or inhibit the use of services (The logistical aspects of obtaining care) and need factors refer to the individual's illness or impairment that necessitates health care utilization (The most immediate cause of health service use, from functional and health problems that generate the need for health care services) (Anderson, 1995).

To develop the conceptual framework of this study, Anderson's behavioral model was applied. Accordingly, predisposing factors are age at last birth, parity, literacy status, religion, ethnicity, occupation, marital status and women's exposure to media. The enabling factors are perception of distance to HI, average monthly family income, attitude to wards pregnancy, presence of husband's approval on ANC, decision where to give birth. The need factors are illness

experience for the last pregnancy, knowledge of danger signs of pregnancy and perceived susceptibility to dangerous health problem related to pregnancy and antenatal care attendance.

2.4. Conceptual frame work

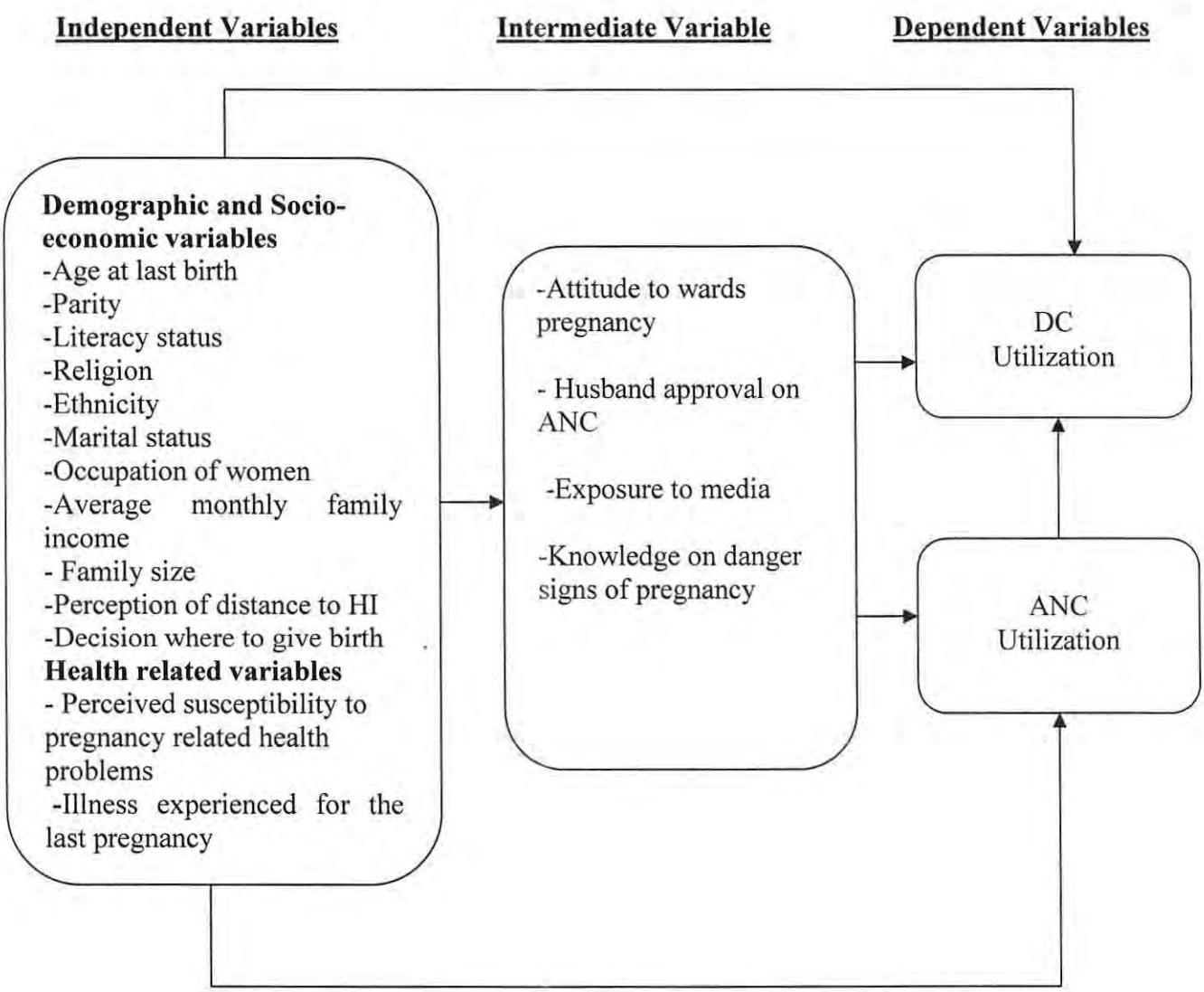

Figure: 1 Conceptual frame work
Source: - Developed by the Researcher based on the Anderson's model and related literature.

CHAPTER THREE

3. Methodology of the study

3.1. Description of the Study Area

The study is conducted in Holeta town is which located in the west Shewa Zone of Oromia regional state. The town is among one of the special zones surrounding Addis Ababa. It is found in the western direction of Addis Ababa about 29 kilometers away. Geographically, the town is located at a latitude and longitude of 9°3′N 38°30′E and 9.05°N 38.5°E with average altitude of 2391 meters above sea level http://en.wikipedia.org/wiki/Holeta_Genet.

The town is generally characterized by Dega climatic condition. It is the larger of the two towns in Walmara Woreda. Administratively, the town is subdivided in to eight kebeles. The livelihood of the majority of the resident is depended on agriculture, petty trade and employee in both governmental and non governmental organizations.

Based on the information obtained from Woreda health office the total population of Holeta town is estimated to be 37,850 of which 18,773 of the population are male and 19,077 are female and 8027 are female of age group 15-49. The population of Holeta obtains health services from one the government owned health center, seven health posts, two medium private clinics, ten small clinics and one special private clinic. And also there are five private drug store and one drug vender. Most of these facilities run integrated maternal health services routinely staffed with senior and junior maternal health care providers.

3.2. Study design

A cross-sectional study design that employed both quantitative and qualitative data collection methods were used to assess factors determining utilization of maternal health care services in the study area.

3.3. Study Subject/Population

The study subjects are sample of all women in the child bearing age, who had given birth in the past three years prior to the survey.

Inclusion and exclusion criteria for the study population

Inclusion criteria

- Women in the reproductive age group (15-49) and who have been residing in the study area
- Women, who gave at least one birth with in the three years preceding the survey

Exclusion Criteria

Women outside the age range15-49 years, who didn't gave birth in the past three years preceding the survey and women who are not residents of the town.

3.4. Types and sources of data

Both primary and secondary data sources were used. Primary data collected using household survey and FGDs. whereas secondary data were extracted from various published and unpublished documents such as official reports, articles and books. Both quantitative and qualitative types of dataset were used in the analysis.

Quantitative

Interview

Face to face interview conducted by using structured questionnaire. The questionnaire includes the information on demographic, socio-economic characteristics, obstetric characteristics, personal women's knowledge and attitude on obstetric risk and maternal health utilization by door to door interviewing the respondents (Annex B).

Qualitative

This study also uses qualitative data that obtained from focus group discussions. Semi-structured open ended and non directive focus group discussion (FGD) guide designed in order to triangulate responses obtained by the structured questionnaire on the knowledge of maternal health care utilization (specifically antenatal care and delivery care) knowledge of danger signs of pregnancy and delivery, primary reasons for ANC non- attendance, and type of assistances during delivery) advantage and disadvantage of home delivery etc (Annex C).

3.5. Sample Size Determination

Sample size determined using the following formula based on the following assumptions (Julie, 2004).

$$n = \frac{p(1-p)(Z\alpha/2)^2}{e^2}$$

Where: n= is the size of the sample

Z= is the standard normal value corresponding to the desired level of confidence

e = error of precision

P= is the estimated proportion of an attribute that is present in the population

Assumptions

i) In the absence of the previous prevalence data on the population under study, and to obtain the maximum sample size, p is assumed to be = 0.5

ii) Margin of error e = 5% is accepted

iii) A confidence interval of 95% is assumed (Zα/2 =1.96).

$$n = \frac{(1.96)^2\ 0.5(1-0.5)}{(0.05)^2} = 384$$

For non-response errors, 10% (384) of contingency added to the sample size = 38, then, total sample size = 422.

3.6. Sampling Procedure

For the quantitative data, the study employed mulit-stage sampling scheme. From a total of eight kebeles in the town, for logistical and cost reasons, four Kebeles, namely: Sadamo, Burka Wolmera, Mede Gudina and Goro Kerensa were randomly selected by using a lottery method. Secondly, the number of households living in the area was recorded; the allocated sample size for each kebeles was obtained using probability proportional to the size of households found in each kebeles. From the four sampled kebeles, a total of 422 samples were selected. The samples allocated as 59 households for Sadamo 108 households for Burka Wolmera, 31

households for Mede Gudina and the rest 224 households for Goro Kerensa kebeles. For all selected kebeles, after selecting a random starting point from the households list, the next eligible individual in the household were interviewed every 7^{th} houses which was fairly proportional to household size in each kebeles. For household more than one eligible woman, interview was done by selecting a women using lottery method, although in the event of a household with no eligible woman the immediate next household was interviewed. Revisit of two times was made in case where eligible respondents were not available at the time of the survey. Regarding a women having two under three children the most recent birth was taken.

For the qualitative design non-probabilistic purposive sampling technique used to obtain a group of women for FGD. A group of seven and eight women of different demographic and socio-economic status included for the two FGDs.

3.7. Measuring instruments

Questionnaire Development

The questionnaire adapted from related works after reviewing relevant literature. Many that could address the objectives of the study were gathered from previous similar studies and other materials. The questions were grouped and arranged according to the particular that they can address. After extensive revision, the final version of the English questionnaire was developed. The English version of the questionnaire translated in to Amharic language and for better understanding by the data collectors and respondents. Consistency checked by translating the Amharic version back to English by another individual fluent in both languages.

Focus Group Discussion

Checklists that consist of issues related to maternal health care were prepared. Two focus groups, consisting of seven and eight members were formed for discussion. These groups mainly focus on women of varying age and different social status.

3.8. Data Collection Processes

Eight female students who completed grade ten and fluent speaker of the both local and Amharic language and familiar with the place of the study kebeles were selected as

enumerators. A total of two supervisors with diploma educational status and who are familiar with the population and social administration settings of the selected kebeles were hired as supervisor. During the actual data collection, data collectors were assigned for each supervisor. The supervisors checked activities of each data collectors by walking with them in each kebeles sometime random spot checking of the households to ensure reliability of the data collected. Each night the supervisors had checked all the filled questionnaires for completion, clarity, and proper identification of the respondents and offered the necessary feedback to data collector in the next morning before the actual procedure. Every morning the supervisors met with the principal investigator and reported the results of the previous day. The principal investigator also randomly checked at least five percent of the supervisors work each day for completeness and relevancies and incomplete and unclear questionnaires were returned back to the interviewers next morning to get it corrected.

Priority to data collection, enumerators and supervisors were trained for two days to make them familiar with data collection tools and approaches of data collection. The training was given by the principal researcher.

Pre test

In one kebele, outside of the selected kebeles, with similar demographic and socio-economic characteristics with the people in the selected kebeles the pre-test of the questionnaire were carried. After house-to house survey conducted to identify women those who met the inclusion criteria, twenty five study subjects identified and the questionnaire administered. Then after, the clarity, understandability, completeness of questions assessed. The interviewers, supervisors and the principal investigator then discussed the results. Based on the feedback that obtained from the pretest improvements applied to the questionnaire.

Data Collection (Survey Procedures)

The data collection process proceeds from February 1 to February 20, 2012. Questionnaires were administered to the eligible women. If the women were not available at the time, appointment dates and hours was taken by discussion with family members or neighbors. A maximum of two more visits were paid if an eligible woman was not at home at the time. The data collectors and supervisors worked from 8:30 am to 6:30 pm with rest for lunch between

12.30 -1:30 pm all the day of the week including Saturday and Sunday. Study subjects who were not permanent dwellers of the town were excluded from the study.

Qualitative

A total of 15 participants were involved in two focus group discussion of women. For the two FGDs, two moderators and two note takers were identified and moderated the FGDs. The two moderatos and note takers are women and the two moderators were diploma holders and the note takers were college students and knew Amharic and the local language (Oromifa) very well. The principal investigator also participated in moderating both FGDs. One day training and practical exercise were given before the actual work.

Focus group discussions with their respective discussants tape recorded not to miss all issues discussed, and finally the principal investigator transcribed the tape recorded after each section, translated and interpreted.

3.9. Data Quality Assurance

The quality of data assured by properly designed and pre-test of the questionnaire, proper training of the interviewers and supervisors of the data collection procedures, proper categorization and coding of the questionnaire. Everyday, the computed questionnaires reviewed and checked for completeness and relevance by the supervisors and principal investigator and the necessary feedback offered to data collectors in the next morning before the actual procedure. For the qualitative the principal investigator identified eligible discussants.

3.10. Data Processing and Analysis

After fieldwork completed and questionnaires edited and coded, the data entered and processed by using SPSS version 17 software. Data cleaning was executed by using frequencies and cross tabulations to check accuracy, outliers, consistencies, and missing values. Accordingly, incorrect entries were identified and re-entered. Descriptive analysis like percentage, mean, standard deviations were used to describe the study population in relation to demographic and socio-economic and other relevant variables.

The methods of analyses were thematic analysis for qualitative data and Bivariate and binary logistic regression analysis for quantitative data. Bivariate analysis used to assess the relationship of several independent variables with the dependent variable by using chi-square test and calculating p-value. The chi-square test used to identify independent variables, which have association with the dependent variable that would be retained for further analysis at the multivariate stage.

Further, multivariate analysis carried out to explore the net effect (relative risk) of all independent variables on the dependent variable by controlling possible intervening variables. To conduct multivariate analysis the logistic regression model used. The logistic regression is used when the dependent variable is dichotomous and the independent variables are of any type. Since the dependent variables for this study are antenatal and delivery care attendance which are dichotomous (with two outcomes). The outcome variables were coded as 1 if the women had received antenatal care at list once and as 0 if she did not received ANC. The same coding procedure was applied for DC 0 for home delivery and 1 for health institution delivery. Multivariate logistic regression predicts the log of odds of the dependent variable as a linear function of the independent variables. The logistic model for K independent variables (x_1, x_2, $x_3 \ldots x_k$) is given as (Julie, 2004);

Logit P (x) = $\alpha + \sum \beta i x i$

Exp (βi) = odds ratio for a person having characteristic i versus not having characteristic i

β = Regression coefficient

α = constant

3.11. Study variables

Dependent variables

- Antenatal care (If the women had received antenatal care check-up at least once during their pregnancy from formal sources)
- Delivery care (the delivery took place at formal public and private facilities by health professionals)

Independent Variables

Demographic and socio-economic factors (Age at last birth, parity, ethnicity, religion, literacy status, marital status, occupation, average monthly family income, family size, exposure to media, perception of distance to HI and decision where to give birth)

Psychosocial and personality factors (Attitude to wards pregnancy (whether the pregnancy was planned or not) husband's approval on ANC attendance)

Health related factors (ANC attendance, Perceived susceptibility to dangerous health problem related to pregnancy, Illness experienced for the last pregnancy)

Knowledge on danger signs of pregnancy

3.12. Ethical Consideration

Informed verbal consent given for each study subjects. Each respondent informed about the objective of the study and assurance of confidentiality. Their names were not recorded. They kindly requested to be included in the study but told that it is their right to participate or not. The survey commenced after written consent obtained from Holeta health bureau and district council. At the end of each interview session, respondents who were non-attendants of ANC advised to attend antenatal and delivery care services for the next pregnancy.

3.13. Dissemination plan

The final report will be presented as partial fulfillment of the degree of masters of population studies to college of development study, Addis Ababa University, and a short report will be communicated to the Woreda health office and Woreda administration. Presentations at professional, local, national and international meetings and publication in peer reviewed national or international journals will be attempted.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

4.1. BACKGROUND CHARACTERISTICS OF THE STUDY POPOULATION

A total of 422 women who had given birth in the past three years prior to the survey and residents of Holeta town were interviewed. From all eligible women in the selected samples, 419 women responded to the questionnaire which made the response rate to be 99.2%.

4.1.1. Demographic and Socio-Economic Characteristics of the Respondents

Most of the study participants were in the age group of 20-34 (79.5%), with a mean age of 27.41 ± (6.074) years. The major ethnic groups among respondents were Oromo (64.7%) and Amhara and Guraga account for 18.1% and 13.4% respectively. Out of the total respondents 70.4% were Orthodox Christians and the rest 8.6% and 21% of the respondents were Muslim and Protestants respectively. About 48% of the respondents have a family size of 4-5 and the average size is 4.55 ± (1.732). More than half (68%) of the respondents were educated; whereas about 32 % of the respondents were illiterate (Table 4.1).

Regarding respondents' occupation, most women were housewives (57.3%) while the other 42.7 % of the respondents consists of students, daily laborer, civil servant, merchant and maid servants. One hundred eleven (26.5%) of the respondents reported monthly family income of above 1000 Birr, while 31.7% reported monthly family income below 401 Birr. The average monthly family income was 797.28 ± (669.87) Birr. 29.1 % of the respondents did not have an exposure to media while 147(35.1%) of the respondent have exposures to both radio and TV. Respondents report on decision making on where to give birth indicated that for 259 (70.4%) decision were made by the women them selves or jointly with their husbands (Table 4.1).

Table 4.1 Percentage Distribution of General Characteristics of Respondents in Holeta Town January 20 to February 20, 2012

Variables	Number(n=419)	Percentage
Age		
15-19 years	16	3.8
20-34 years	333	79.5
35-49 years	70	16.7
Mean ±SD		(27.41 ±6.074)
Literacy status		
No schooling	134	32
Schooling	285	68
Ethnicity		
Oromo	271	64.7
Amhara	76	18.1
Guraga	56	13.4
Other (Tigere, etc)	16	3.8
Occupation		
House wife	240	57.3
Other (students, daily laborer, civil servant, merchant, maid servant, etc)	179	42.7
Religion		
Orthodox	295	70.4
Muslim	36	8.6
Protestant	88	21
Marital status		
Married	340	81.1
Others (divorced, widowed, never married, separated)	79	18.9
Average monthly family income		
below 401	134	31.7
401-1000	174	41.8
above 1000	111	26.5
Mean ±SD		(797.28 ±669.88)
Family size		
1-3	123	29.4
4-5	203	48.4
above 5	93	22.2
Mean ±SD		(4.55±1.732)
Media exposure		
No exposure	122	29.1
Radio or TV	150	35.8
Radio and TV	147	35.1
Decision where to give birth		
Self/jointly with husband	295	70.4
Others(husband or other family members)	124	29.6

***Source*: - Author's Field Survey, 2012.**

4.1.2. Obstetric Characteristics of the Respondents

Majority, 72.1% of the respondents were in the age groups 20-34 years at their last birth and 12.9% were above age 34 years during their last birth. Of all the respondents 12.6% of respondents were parity of five and more. Moreover, a sizable proportion 54.2% of women had 2-4 pregnancies. 11% have had infant death at least once in their lifetime before the survey. Majority of the women 58.5% reported that their last pregnancy has been planned; where as 41.5% said that it was not planned (Table 4.2).

Table.4.2:- Obstetrics Characteristics of the Respondents in Holeta Town, January 20 to February 20, 2012

Variables	Number (n=419)	Percent (%)
Age at last birth		
15-19	63	15
20-34	302	72.1
35-49	54	12.9
Number of pregnancy		
1	126	30.1
2-4	230	54.9
5 and above	63	15
Parity		
parity 1	139	33.2
parity 2-4	227	54.2
parity 5 and above	53	12.6
Number of live births		
1 live birth	143	34.1
2 and 3 live births	181	43.2
4 and Above live births	95	22.7
Ever had abortion		
No	368	87.8
Yes	51	12.2
Ever had stillbirth		
No	402	95.9
Yes	17	4.1
Ever had infant death		
No	373	89
Yes	46	11
Was last pregnancy planned		
No	174	41.5
Yes	245	58.5
Presence of husband approval on ANC		
Yes	325	77.6
No	94	22.4

***Source*: - Author's Field Survey, 2012.**

4.1.3. Maternal Health Care Utilization

Out of all the respondents included in the study, 365 (87.1%) had at least one antenatal visit during their last pregnancy while 54 (12.9%) had none. From the total of respondents attended antenatal care 41.9% of the women made their first antenatal visit in their first trimester of pregnancy and 54.5% of women had their first antenatal visit in their second trimester, while 3.6% in their third trimester. Among the antenatal service users 33.7% had less than four antenatal visits and the rest 66 % reported that they had four or more antenatal visits at the time of their last pregnancy (Table 4.3).

Among ANC users the majority 48.2 % reported having attended health education while 47.4 % had never received health education during any visit. The majority of women 76.7 % reported they had injections of tetanus toxoid among them 73.6 % were reported two and more injection of tetanus toxoid while 26.4% had single dose of injection (Table 4.3).

Concerning place of last delivery, 161 (38.4%) of the deliveries took place at home, and 258 (61.6%) at health institutions. Among the home deliveries 96% were attended by TTBAs, untrained TBAs, relatives neighbors and seven (4%) of home deliveries were assisted by health workers (Table 4.3).

Table 4.3:- Percentage Distribution of Maternal Health Care Utilization in Holeta Town, January 20 to February 20, 2012

Variables	Number	Percentage (%)
Received ANC		
Yes	365	87.1
No	54	12.9
Total	419	100
Timing of 1st ANC visit		
1st trimester	153	41.9
2nd trimester	199	54.5
3rd trimester	13	3.6
Total	365	100
Frequency of ANC visit		
< Four visit	123	33.7
≥ Four visits	242	66.3
Total	365	100
Tetanus toxoid (TT) vaccine		
Yes	280	76.7
No	85	23.3
Total	365	100
Number of Tetanus toxoid (TT) vaccine		
Single dose	74	26.4
≥ Two dose	206	73.6
Total	280	100
Health education received during ANC		
Yes	177	48.5
No	172	47.1
don't know	16	4.4
Total	365	100
Measured blood pressure during ANC		
Yes	334	91.5
No	31	8.5
Total	365	100
Measured weight during ANC		
Yes	340	93.2
No	25	6.8
Total	365	100
Laboratory examinations (blood or urine) during ANC		
Yes	265	72.6
No	100	27.4
Total	365	100
Place of delivery		
Health institution	258	61.6
Home	161	38.4
Total	419	100
Delivery assistance among home Deliveries		
Health workers	7	4.0
TBAs*	154	96.0
Total	161	100

***TBAs** include TBA, Close relatives/ Friends, Neighbors and TTBA; Source: - Author's Field Survey, 2012.

4.1.4. Respondents Knowledge and Attitude on ANC and DC Services.

Nearly 78 % of women reported that ANC check-up has benefits to the health of both the mother and children, while 6.5 % mentioned its benefit is only for the health of the child, and the rest 12.4 % reported that it is beneficial for the health of mother only. ANC users gave different reasons for initiating ANC visit for the first time 80.9% were for medical check-up and regular follow up, while 19.1% were for health problems. Regarding knowledge on danger signs of pregnancy 63.5% have better knowledge while the rest 36.5% have poor knowledge. Concerning to the opinion of the respondents on ANC 96.2% reported that healthy women should attend ANC 61.3% of respondent's report ANC should be started 1st trimester of pregnancy the rest 37% and 1.7% report on 2nd and 3rd trimester respectively (Table 4. 4).

Among the 130 women who had illness experience for last pregnancy 68.5% of the respondents consulted the health workers and 2.3% of the respondents consulted the TBA the rest 13.8% and 15.4% reported that they used traditional medicine and did not take any action respectively. 72.1% respondents report that giving birth at home has risks while 27.9% report it has no risks (Table 4. 4).

Almost all of the Focus group participants defined ANC as a care provided during pregnancy to prevent any problems related to pregnancy and childbirth. On both FGDs almost all women were agreed that ANC check up has benefit for both maternal and child health. And they also agree that healthy women should attend ANC but there were a different opinion among the women in both FGDs on the starting time of the ANC checkups some women agree it should be in the first three months where as some said in fourth month.

Majority of the FGD participant able to name the danger signs of pregnancy related health problems such as hypertension, headache, anemia and vaginal bleeding. In both the focus group discussion the women asked about the knowledge that they have on the delivery care services and most of the participant agreed that delivery care is the care provided for women by trained health professional in the health institution. The groups were also asked the choice of delivery site. Most of the participant agreed that the best place to deliver a child is in health institution while the some of the participant preferred home delivery.

Table 4.4:- Respondents' Knowledge and Attitude about Antenatal and Delivery Care Services in Holeta Town, January 20 to February 20, 2012 (n=419)

Variables	Numbers	Percentage %)
Benefits of ANC check up		
Maternal health	52	12.4
Child health	27	6.5
Both maternal and child health	326	77.8
Do not know	14	3.3
Sources of ANC information		
Health institution	112	26.7
Radio\TV	110	26.3
Others (TBA, CHA, relatives/friends, and others)	197	47
Main reason to initiate ANC for the 1st time (n=365)		
Health problem	70	19.2
To start regular check up	295	80.8
Perceived susceptibility to dangerous pregnancy related health problem		
Yes	198	47.3
No	221	52.7
Illness experienced for the last pregnancy		
Yes	130	31
No	289	69
Action taken for illness during recent pregnancy (n=130)		
Consulted health workers	89	68.5
Consulted TBA	3	2.3
Used traditional medicine	18	13.8
Do not take any action	20	15.4
Knowledge of danger signs of pregnancy		
Better knowledge	153	63.5
Poor knowledge	266	36.5
Should a healthy women attend ANC		
No	16	3.8
Yes	403	96.2
When to start ANC (n=403)		
1-3 months	247	61.3
4-6 months	149	37
7-9 months	7	1.7
The importance of ANC for your health		
Highly important	361	86.2
medium	36	8.5
Do not know	22	5.3
The importance of ANC for the fetus		
Highly important	375	89.5
medium	23	5.5
Do not know	21	5
Think giving birth at home has risks		
Yes	302	72.1
No	117	27.9
Attended by a skilled delivery attendant is beneficial to my well being		
Agree	404	96.4
Disagree	5	1.2
In different	10	2.4
Attended by a skilled delivery attendant is beneficial to child's well being		
Agree	405	96.7
Disagree	5	1.2
In different	9	2.1

Source: - Author's Field Survey, 2012.

4.1.5. Education given during ANC service

Among respondents attended ANC, who had health education, 53.4% recalled they were informed or educated on HIV/ADIS and PMTCT, 48.3% on advantages of ANC , 33.5% on family planning, 22.2% on breast feeding 17.0% on baby care and 17% where to give birth (Table 4.5).

Table 4.5:- Education given during ANC Services in Holeta town, January 20 to February 20, (n=177)

Education Given	Percentage
HIV test PMTCT	53.4
ANC	48.3
Family planning	33.5
Breast feeding	22.2
Where to give birth	17
Baby care	17
Signs of pregnancy complication	10.2
Don't remember	6.8

On both FGDs most of the focus group participant agreed that the information given during ANC visit mostly focused on HIV/ADIS and PMTCT and they report that they received information concerning the advantage of the ANC attendance, family planning and the use of breast feeding.

One participant from FGD1 married aged 22 and parity of one said that "*The health care providers are not telling us basic information. They did not inform me health problems related to pregnancy, what type of drug I should not use. But some experienced women are willing to inform others. The discussion is made mainly at waiting room. The beginners are very much worried. They should be informed very well.*"

4.1.6. Respondents' knowledge on danger signs of pregnancy

Among all respondents reported that they knew at least one danger sign(s) of pregnancy related health problems. Majority of the respondents, 48.8% report persistent vomiting, 44.2% report anemia, 32.7% hypertension (Figure 2).

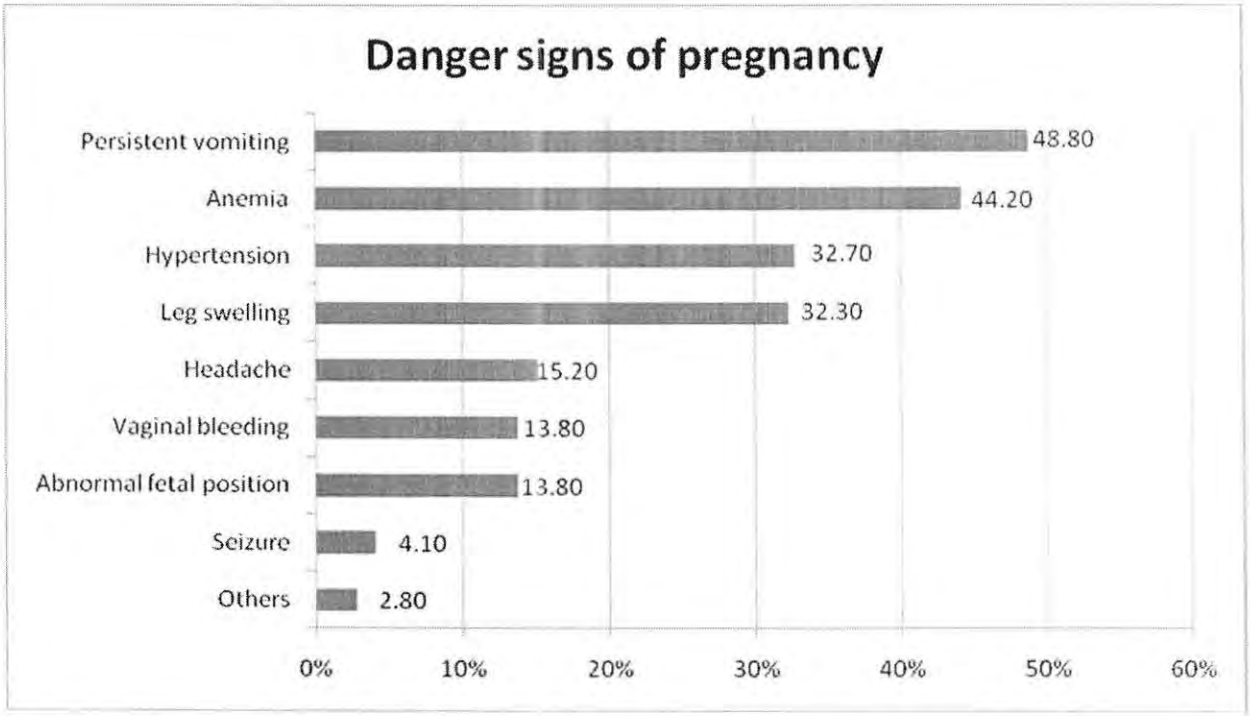

Figure 2:- Percentage Distribution of Respondents' knowledge about Danger Signs of Pregnancy in Holeta Town, January 20 to February 20, 2012, (n=217)

4.1.7. Main Reasons for ANC Non-Attendance

The reported reason for non attendance includes absence of illness (44.4%), no or little knowledge about ANC (35.2 %), being too busy 31.5% (Fig.3).

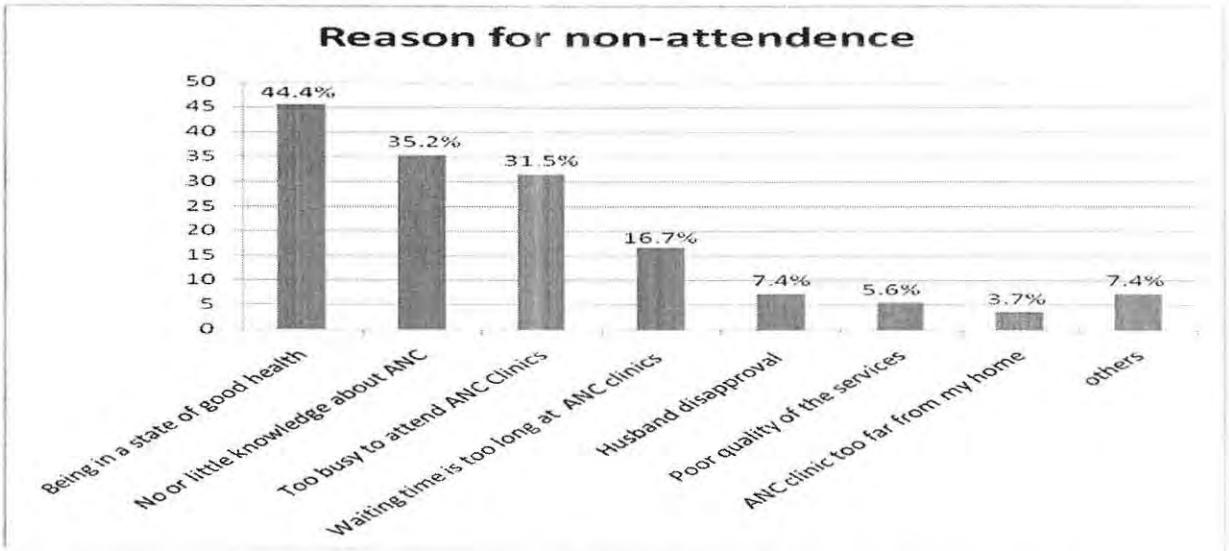

Figure 3:- Percentage Distribution of Reasons for non Attendance ANC Holeta Town, January 20 to February 20, 2012, (n=54)

Also in the FGDs the majority of participant agreed the main reasons were lack of awareness, apparently being healthy, work overload either in the household or in the other daily activities, long waiting time, financial constraint, and confidence on local TBAs.

One of the participant from FGD1 aged 29, married and parity of three said," *some of the women do not want to go to health institutions for fear of HIV test during ANC visit if the result is positive other people may know about them being HIV positive, not knowing the HIV test during pregnancy is voluntary and confidential".*

4.1.8. Respondents Perception about the Quality of the ANC Service and health service factors

Out of the ANC users asked about the personal respect of health workers at ANC unit the majority 91.2% reported that health workers were respectful for them. As to waiting time for ANC services 52.9% said short time, 38.6 % said fair time while only 8.5% reported long time. Women also asked about a lack of privacy at ANC unit 81.6% no lack of privacy and 42(11.5%) report that there was a problem of privacy (Table 4.6).

189 (51.8%) of women said there was good quality of services, 35.9% satisfactory, while 12.3% report poor. Regarding to perception of distance to HI 33.9% of respondents reported it is very close and the rest 57% and 3.1% report average and too far respectively. Among the respondents who said they pay for ANC services 82.4% report the perceptions of payment for ANC is fair while 8% report the payment is unaffordable (Table 4.6).

Regarding the quality of the ANC services, participants of FGDs stated that some health workers were not treating the women politely, especially during delivery care. But in general the health care providers in their area are respectful. Most of women in both FGDs agreed that over all their perception on quality is good but there are some problems associated with inadequate skilled professionals, manner of some health providers, shortage of equipments and some times there is lack of privacy. One of the discussant from FGD2, aged 29, parity of four, stated that, "*If you go to health institution you will find low quality of services and lack of respect and mistreatment from some of the health care providers who are not committed to their work*".

Table 4.6:- Perception on the quality of antenatal care service and health service factors in Holeta town, Ethiopia, January 20 to February 20, 2012(n=365)

Variables	ANC users	Percentage (%)
Personnel respect of health workers at ANC unit		
Yes	333	91.2
No	23	6.3
Do not know	9	2.5
Waiting time for ANC		
Short	193	52.9
Fair	141	38.6
Long	31	8.5
Lack of privacy at ANC unit		
No	298	81.6
Yes	42	11.6
Do not know	25	6.8
Perception on quality of ANC services		
Good	189	51.8
Satisfactory	131	35.9
Poor	45	12.3
Rank behavior of health workers		
Very good	137	37.5
Good	155	42.5
Fair	55	15.0
Bad	9	2.5
very bad	9	2.5
Perception of distance to HI (n=419)		
Very close	142	33.9
Average	239	57
Too far	38	9.1
Average time from home to HI in hours (n=419)		
<1	329	78.5
1-2	85	20.3
>2	5	1.2
Pay for ANC		
Yes	125	34.1
No	242	65.9
Perceptions of payment for ANC (n=125)		
An unaffordable	10	8
Fair	103	82.4
Very small	12	9.6

Source: - Author's Field Survey, 2012.

4.1.9. Reasons for Preferring Home Delivery

Among one hundred sixty one women who delivered at home 97 (60.2%) reported that they prefer to deliver at home where close relatives are nearby than HIs, 20.5% reported that they dislike mistreatment of health workers, 19.3% report that they had more trust on TBAs than health professionals, 18.9% report due to transport problem and (9.3%) reported that labour was smooth (Figure 4).

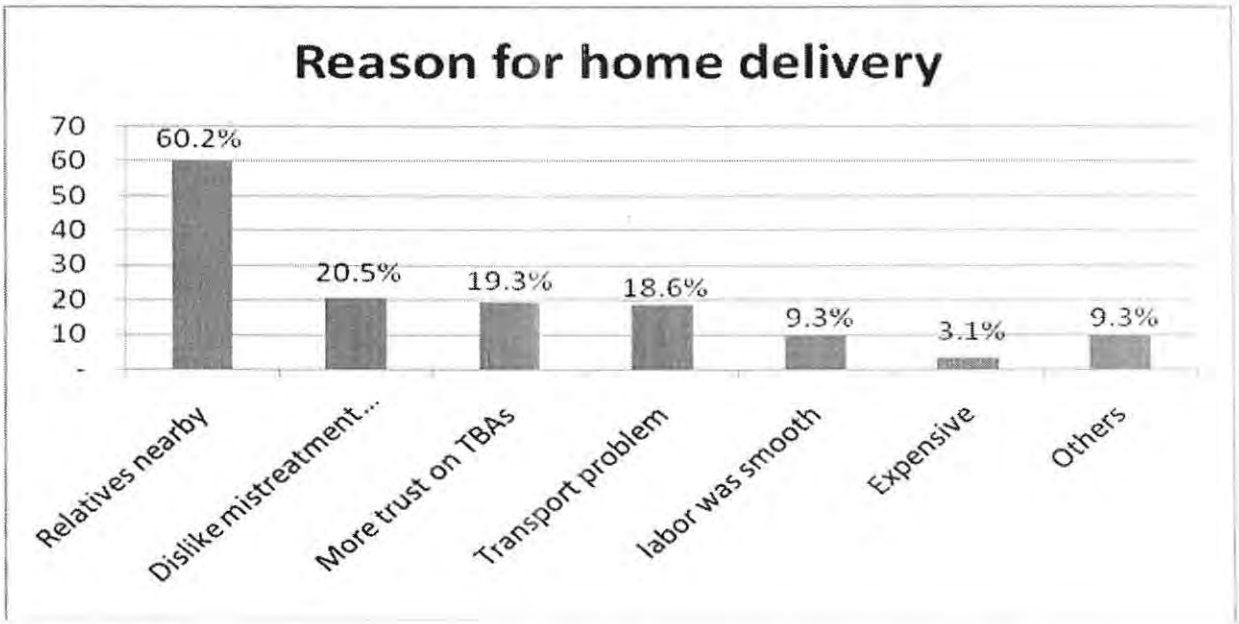

Figure 4:- Percentage Distribution of Reason for Preferring Home Delivery in Holeta Town, January 20 to February 20, 2012, (n=161)

Concerning to the Home delivery there was differences in opinion of home delivery and health institutional delivery in both FGDs but most women agreed that health institutional delivery is best for both the mother and child's health. And the FGDs participants agreed that the main reason for most of home delivery is the desire to deliver at home accompanied by relatives.

On FGD1 a widowed women with a parity of four and aged 33 said *"some women attend antenatal care throughout the whole pregnancy period but usually they deliver at home because labour is unpredictable and arises suddenly without warning and especially if it is in the night time due to transport problem the women do not have much choice rather than delivering at home".*

Another discussant from FGD1 aged 32, parity of three said, "*Most women with experience in giving births more than once did not want to go to health institutions because they think that they had enough experience and don't need assistance of health workers*" Another participant from the FGD2 aged 28 and parity of two added that "Mostly *the health workers giving delivery care services in the health institution are students and do not have adequate knowledge to assist child delivery because of this fear some women rather prefer to give birth at home with the assistance of TBAs*".

4.1.10. Respondent's knowledge on danger signs of labour and risk on giving birth at home

Among the women who be able to name at least one danger sign of labour 109(57.0%) of them report prolonged labour, 73(38.6%) of them virginal bleeding, 56(29.6%) early rupture of membrane (Figure 5).

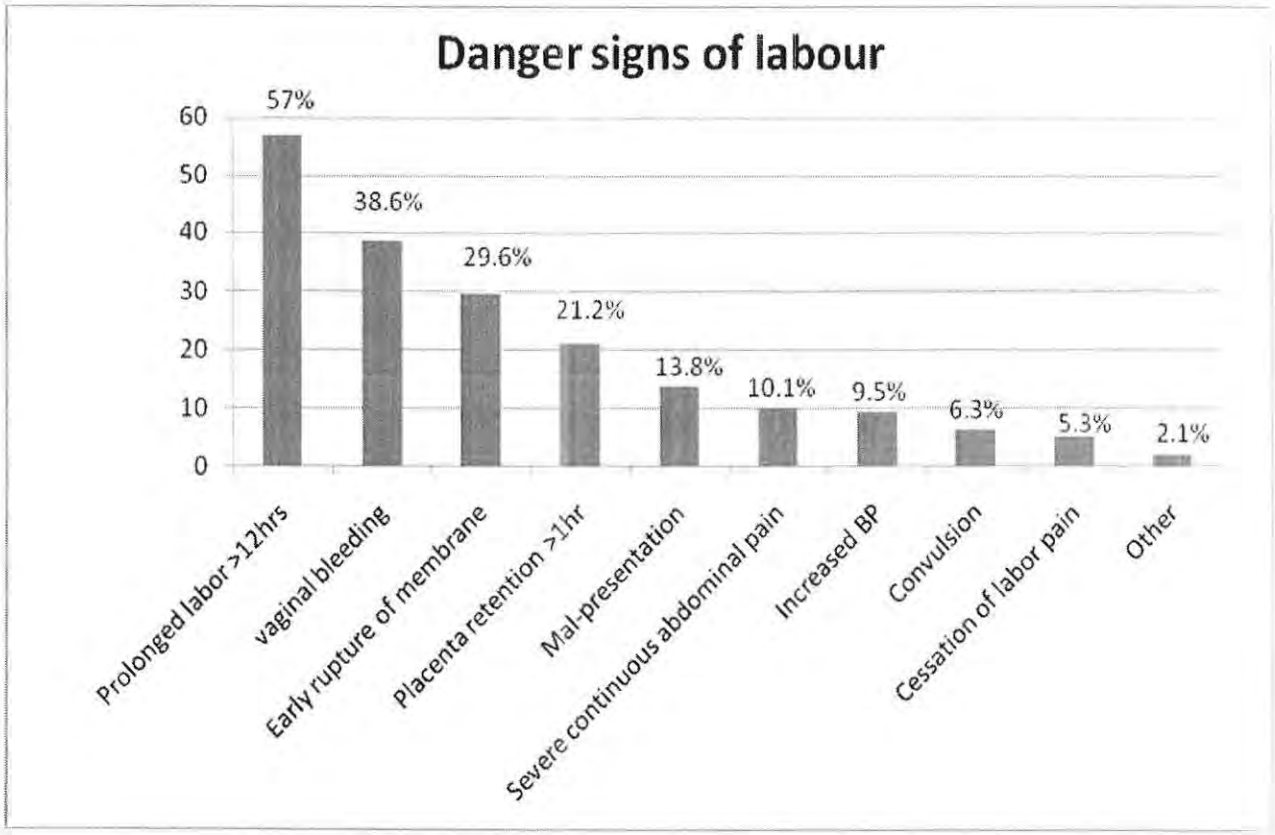

Figure 5:- Percentage Distribution of Respondents' knowledge about Danger Signs of labour in Holeta Town, January 20 to February 20, 2012, (n= 189)

Women were asked if they think giving birth at home has risks among 302 women who said giving birth at home has risks includes maternal deaths 101 (47%), maternal exhaustion 99 (46%), fetal distress 80 (37.2%) and fetal/ neonatal death 77 (35.8%) (Figre 6).

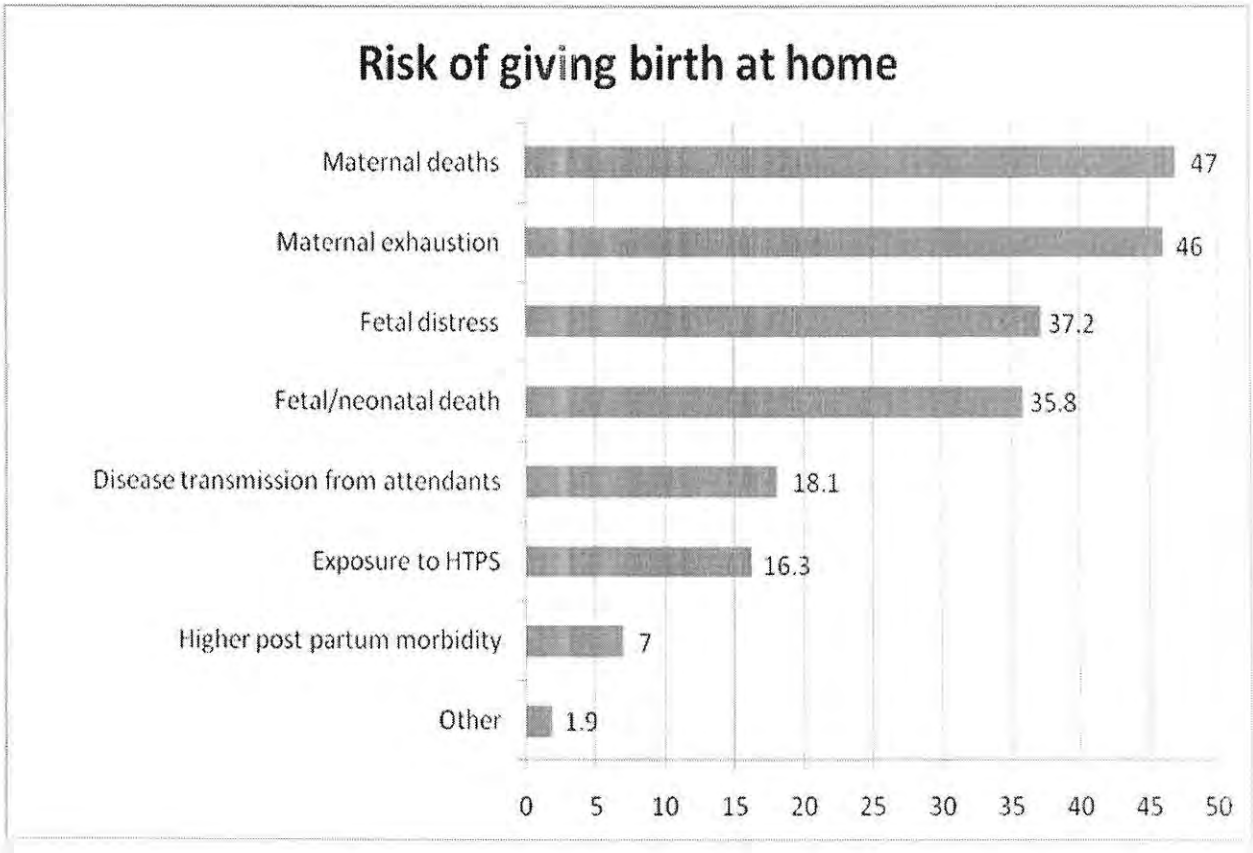

Figure 6:- Percentage Distribution of Respondents' knowledge on risk of giving birth at home in Holeta Town, January 20 to February 20, 2012, (n= 215)

4.2. Bivariate Analysis

4.2.1. Association of some selected factors with ANC attendance

The study has examined the relationship between antenatal care and demographic, socio economic and other health related variables like, age at last birth, ethnicity, religion, literacy status, occupation, marital status, average monthly family income, media exposure, family size, perception of distance to HI and husband approval on ANC .

Age at birth, ethnicity, literacy status, occupation marital status, average monthly family income, media exposure and husband approval on ANC are found to be associated with women's ANC attendance but, religion, family size and perception of distance to HI were not significantly associated with ANC attendance in the study area (Table 4.7).

Accordingly, age at last birth is significantly associated with utilization of ANC (χ^2=23.626, P<0.001). Women's literacy status is also associated with use of antenatal care in the study area, use of ANC service increase with educated respondents. About 95.1% of women with education received ANC from health professional compared with 70.2% of women with no education. The chi-square test revealed that literacy status has significant association with utilization of ANC (χ^2=50.491, p<0.001) (Table 4.7).

Women occupation also has shown a significant association with ANC attendance (χ^2 =8.568, p<0.01) among women who reported their occupational status housewife 8.7% were not attended ANC while 19.3% of women in other occupation (students, daily laborer, civil servant, merchant, maid servant, etc) did not attend ANC (Table 4.7).

Exposure to media is also significantly associated with utilization of ANC (χ2 =58.155, p<0.001). About 93.9% of mothers who are exposed to Radio or TV receive ANC. Among the total women who exposed to radio and TV 88.3 % of women received ANC while the rest 11.7% not received ANC (Table 4.7).

Table 4.7:- Association of some selected factors with attendance or non-attendance of ANC, in Holeta town, January 20 to February 20, 2012, (n=419)

Variables	ANC Attendance		P-Value	Chi-square(χ^2)
	Yes	No		
Age at last birth				
15-19	55(87.3%)	8(12.7%)		
20 – 34	274(90.7%)	28(9.3%)	0.000***	23.626
35-49	36(66.7%)	18(33%)		
Total	365(87.1%)	54(12.9%)		
Literacy status				
No schooling	94(70.2%)	40(29.8%)		
Schooling	271(95.1%)	14(4.9%)	0.000***	50.491
Total	365(87.1%)	54(12.9%)		
Ethnicity				
Oromo	227(83.8)	44(16.2%)		
Amhara	72(94.7%)	4(5.3%)		
Guraga	52(92.9%)	4(7.1%)	0.040*	8.290
Others	14(87.5%)	2(12.5%)		
Total	365(87.1%)	54(12.9%)		
Religion				
Muslim	34(94.4%)	2(5.6%)		
Christian	260(88.1%)	35(11.9%)	0.073	5.240
Protestant	71(80.7%)	17(19.3%)		
Total	365(87.1%)	54(12.9%)		
Occupation				
Housewife	219(91.3%)	21(8.7%)		
Others (Students, daily laborer, civil servant, merchant maid servant, etc)	146(80.7%)	35(19.3%)	0.003**	8.568
Total	365(87.1%)	54(12.9%)		
Marital status				
Married	307(90.3%)	33(9.7%)		
Others (Divorced, Separated, widowed & Never Married)	58(73.4%)	21(26.6%)	0.000***	16.263
Total	365(87.1%)	54(12.9%)		
Average monthly family income				
Below 401 birr	96(71.6%)	38(28.4%)		
401 - 1000 birr	160(92%)	14(8%)	0.000***	44.350
Above 1000 birr	109(98.2%)	2(1.8%)		
Total	365(87.1%)	54(12.9%)		
Media exposure				
No exposure	83(74.1%)	29(25.9%)		
Radio or TV	138(93.9%)	9(6.1%)	0.000***	58.155
Radio and TV	144(88.3%)	19(11.7%)		
Total	365(87.1%)	54(12.9%)		
Family size				
Three and below	113(91.9%)	10(8.1%)		
Four to Five	177(87.2%)	26(12.8%)	0.051	5.946
Six and Above	75(80.6%)	18(19.4%)		
Total	365(87.1%)	54(12.9%)		

*** = P < 0.05 ** = P < 0.01 *** = P < 0.001; Source: - Author's Field Survey, 2012.**

The result of bivatiate analysis indicate that as parity increase ANC attendance decrease which shows there is a relationship between parity and ANC attendance (χ^2=10.386, p<0.01). 90.7% mothers who have one child received ANC where as 88.1% and 73.6% of mothers with parity 2-4 and five and above received ANC respectively (Table 4.8).

Knowledge on danger signs of pregnancy found to have an association with ANC attendance (χ^2=17.258, p<0.001). 96.1% respondents with better knowledge on danger signs of pregnancy attended ANC where as 81.9% of women with poor knowledge attended ANC. Presence of husband approval on ANC also found to have association with ANC attendance (χ2 =94.634, p<0.001) (Table 4.8).

Table 4.8:- Association of Some Selected obstetric and health related Factors with attendance or non-attendance of ANC in Holeta Town, January 20 to February 20, 2012, (n=419)

Variables	ANC Attendance		P-Value	Chi-square (χ^2)
	Yes	No		
Parity				
Parity 1	126(90.7%)	13(9.3%)		
Parity 2-4	200(88.1%)	27(11.9%)	0.006**	10.386
Parity 5 and Above	39(73.6%)	14(26.4%)		
Plan pregnancy				
Yes	235(95.9%)	10(4.1%)	0.000***	40.752
No	130(74.7%)	44(25.3%)		
Illness experience for the last pregnancy				
Yes	123(94.6%)	7(5.4%)	0.002**	9.451
No	242(837%)	47(16.3%)		
Knowledge on danger signs of pregnancy			0.000***	17.258
Better knowledge	147(96.1%)	6(3.9%)		
Poor knowledge	218(82%)	48(18%)		
Perceived susceptibility to health problems related to pregnancy				
Yes	184(92.9%)	14(7.1%)	0.001**	11.315
No	181(81.9%)	40(18.1%)		
Perception of distance to HI				
Very close	127(89.4%)	15(10.6%)		
Average	206(86.2%)	33(13.8%)	0.563	1.148
Too far	32(84.2%)	6(15.8%)		
Presence of Husband approval on ANC				
Yes	314(95.4%)	15(4.6%)	0.000***	94.634
No	51(56.7%)	39(43.3%)		

*** = P < 0.05 ** = P < 0.01 *** = P < 0.001; Source: - Author's Field Survey, 2012.**

4.2.2. Association of some selected demographic and socio-economic factors with delivery care utilization

Table 4.9 shows that the percentage distribution with home and health facility delivery of study subjects based on some demographic and socio- economic factors. Accordingly the chi-square test shows that there is an association between non-attendant of DC (HI delivery) and some factors. From the selected variables age at last birth, parity, literacy status, ethnicity, religion, occupation, marital status, average monthly family income, family size, and perception of distance to health institutions, decision where to give birth and ANC attendance are associated with DC. But religion found to have no association with DC attendances.

Age has a significant association with DC attendance ($P < 0.001$, $X^2 = 15.587$). As age increased the proportion of the women who gave birth at home also increased from the younger age group (15-19) 73% used HID and 27 % reported home delivery. Out of the respondents in the age group 35-49, 63.3 % and 36.7 % reported home and HID, respectively (Table 4.9).

Literacy status were found to be associated significantly with DC attendance ($P < 0.001$, $X^2 = 83.8$). Among the respondents with schooling, 76.5% were DC attendants but out of those who reported with no education only 29.8% were DC attendants. Average monthly family income also associated with DC ($P < 0.001$, $X^2 = 63.066$). Among women who reported their average monthly family income is above 1000, 83.8% are attendant of DC where as those who reported their monthly family income is below 401 only 35.8% were attended DC (Table 4.9).

Decision where to give birth also found to have a strong association with DC ($P < 0.001$, $X^2 = 57.133$). ANC attendance has a significant association with DC attendance ($P < 0.01$, $X^2 = 76.874$). From the respondents who reported attended ANC 69.6 % were DC attendant but from ANC non-user 7.4 % were DC attendant (Table 4.9).

Table.4.9:- Association of Some Selected Factors with non-attendance of DC, in Holeta Town, January 20 to February 20, 2012, (n=419)

Variables	DC Attendance		P-Value	Chi-square(χ^2)
	Home (n=161)	HI(n=258)		
Age at last birth				
15 – 19	17(27%)	46(73%)		
20 – 34	111(36.7%)	191(63.3%)	0.000***	15.587
35 -49	33(61.1)	21(38.9%)		
Parity				
Parity 1	38(27.3%)	101(72.7%)		
Parity 2-4	88(38.8%)	139(61.2%)	0.000***	24.312
Parity 5 and Above	35(66%)	18(34%)		
Literacy status				
No schooling	94(70.2%)	40(29.8%)	0.000***	83.800
Schooling	67(23.5%)	218(76.5%)		
Ethnicity				
Oromo	122(45%)	149(55%)		
Amhara	24(31.6%)	52(68.4%)	0.001**	16.846
Guraga	10(17.9%)	46(82.1%)		
Others	5(31.2%)	11(68.8%)		
Religion				
Orthodox	116(39.3 %)	179(60.7%)		
Muslim	12(33.3%)	24(66.7%)	0.769	0.527
Protestant	33(37.5%)	55(62.5%0		
Occupation				
Housewife	82(34.2%)	158(65.8%)	0.038*	4.305
Others	49(32.9%)	100(67.1%)		
Marital status				
Married	116(34.1%)	224(65.9%)		
Others (Divorced, Separated, widowed & Never Married)	45(57%)	34(43%)	0.000***	14.139
Average monthly family income				
Below 401 birr	86(64.2%)	48(35.8%)		
401 - 1000 birr	57(32.8%)	117(67.2%)	0.000***	63.066
Above 1000 birr	18(16.2%)	93(83.8%)		
Media exposure				
No exposure	86(70.5%)	36(29.5%)		
Radio or TV	42(28%)	108(72%)	0.000***	75.769
Radio and TV	33(22.4%)	114(77.6%)		
Perception of distance to HI				
Very close	49(34.5%)	93(65.5%)		
Average	103(43.1%)	136(56.9%)	0.037*	6.615
Too far	9(23.7%)	29(76.3%)		
Decision where to give birth				
Self/jointly with husband	79(26.8%)	216(73.2%)	0.000***	57.133
Others(husband or other family members)	82(66.1%)	42(33.9%)		
ANC attended				
No	50(92.6%)	4(7.4%)	0.000***	76.874
yes	111(30.4%)	254(69.6%)		

*** = P < 0.05 ** = P < 0.01 *** = P < 0.001; Source: - Author's Field Survey, 2012.**

4.3. Multivariate Analysis

Multicllinearity effect and models goodness of fit

The existence of inter correlation among independent variables and goodness of fit of the model was examined before applying the binary logistic regression models. The existence of multicollinarity effect in the model is checked by using tolerance or variance inflation factor (VIF) and found out that there was no multicollinarity effect. Regarding the goodness of fit of the models, there are various ways to assess the extent to which the models fit the data. One way of assessing how well the models fits the data is by using the Hosmer and Lemeshow goodness of fit test. Insignificant value of this test shows the goodness of a model. In this study, the values of Hosmer and Lemeshow tests were insignificant for the two models. Hence, the two models were fitted well with the data (Annex A).

4.3.1. Determinants of ANC and DC utilization

Antenatal care attendance was cross tabulated with age at last birth, ethnicity, religion, marital status, literacy status, occupation of women, average monthly family income, media exposure, presence of husband approval on ANC, perception of distance to HI, parity, attitude towards pregnancy, knowledge on danger signs of pregnancy, illness experience for last pregnancy and perceived susceptibility to dangerous health problems related to pregnancy. Chi-square statistic showed that ANC is significantly associated with these variables ($P < 0.05$) except religion, family size, and perception of distance to HI. Similarly delivery care attendance was also cross tabulated with age at last birth, parity, ethnicity, religion, occupation, marital status, average monthly family income, media exposure, family size, perception of distance to HI, decision where to give birth and ANC attendance, The chi-square statistic showed that DC is significantly associated with these variables ($P < 0.05$) except religion. But, this simple cross-tabulated chi-square result may not show the independent variables exact influence on the dependent variable, because the influences of other variables were not controlled.

Thus, binary logistic regression analyses were applied to those variables that had significant association in the bivariat analysis, to examine the net effect of each independent variable on antenatal care attendance and delivery care attendance of women by controlling for the effects of all other intervening variables.

In this study for the two dependent variables (ANC and DC) the binary forms were ANC attendant and non-attendant and DC attendant and non-attendant. It is coded as a dummy variable (1= ANC attendant and 0=ANC non-attendant and 1= DC attendant (HID) and 0 = DC non-attendant (home delivery).

4.3.1.1. Demographic and socio-economic determinants of ANC utilization

Some selected demographic, socio-economic and health related factors, which had significant association in the bivariate analysis with ANC were further tested by binary logistic regression, to investigate the overall net effects of these variables on antenatal care attendance.

Variables entered into the model are age at last birth, parity, literacy status, occupation, average monthly family income, media exposure, knowledge on danger sign of pregnancy, attitude towards pregnancy (whether the pregnancy was planned or not) and presence of husband approval on ANC.

Among the variables included in the binary logistic regression model, as depicted in (Table 4.10), age at last birth, literacy, monthly average family income, media exposure, attitude towards pregnancy (whether the pregnancy was planned or not), knowledge on danger signs of pregnancy, and presence of husband approval on ANC were found to have significant effect on ANC attendance but the others were found to have no significant effect (Table 4.10).

Table 4.10:- Multivariate logistic regression analysis results of respondents in ANC attendance, in Holeta town, January to February 20, 2012, (n=419)

Variables	B	S.E	Sig	Exp (B)	95%C.I. for EXP(B)	
					Lower	Upper
Age at last birth						
15 – 19(RC)						
20 – 34	.155	.625	.804	1.168	.343	3.976
35 - 49	-.700	.829	.040	**.183***	.036	.927
Parity						
Parity 1	-.566	.745	.448	.568	0.132	2.448
Parity 2-4	.021	.618	.973	1.021	0.304	3.430
Parity 5 and above (RC)						
Literacy status						
No Schooling (RC)						
Schooling	.973	.458	.034	**2.645***	1.078	6.487
Occupation of the respondent						
House wife	.593	.433	.171	1.809	0.775	4.222
Others (civil servant students, maid servant, merchant etc...) (RC)						
Marital status						
Married	.058	.500	.907	1.067	0.398	2.821
Others(divorced, widowed, never married)(RC)						
Average family monthly income						
Below 401 birr	-1.922	.908	.034	**.146***	.025	.867
401 - 1000 birr	-1.401	.911	.124	.246	.041	1.470
Above 1000 birr(RC)						
Media exposure						
No exposure (RC)						
Radio or TV	1.389	.507	.006	**4.013****	1.487	10.831
Radio and TV	1.485	.711	.037	**4.416***	1.097	17.784
Planned pregnancy						
Yes (RC)						
No	-1.087	.471	.021	**.337***	0.134	0.850
Knowledge on danger signs of pregnancy						
Better knowledge	1.264	.537	.019	**3.541***	1.236	10.147
Poor knowledge (RC)						
Presence of husband approval on ANC						
Yes	2.197	.457	.000	**8.999*****	3.706	21.855
No (RC)						

*** = P < 0.05 ** = P < 0.01 *** = P < 0.001; Source: - Author's Field Survey, 2012.**

The multivariate analysis for ANC revealed that women in the age group of 20-34 the probability of attending ANC were higher compared with those in the age group 15-19 (OR=1.168). Women with education were more than two times more likely to attend ANC (OR=2.645) as compared with those who were illiterate (Table 4.10).

Regarding ANC use and average monthly family income, the multivariate analysis result showed that the likelihood of utilizing ANC decreased, as the family income get lower. From the Table 4.10, it may be observed that respondents who had an average monthly family income below 401 were less to attend ANC as compared with those whose average monthly family income were above Birr 1000 (OR=0.146) (Table 4.10).

Similarly, media exposure has association with the ANC attendance. Women who hadexposure to radio or TV were four times higher attended ANC than those with no exposure (OR=4.013). Regarding attitude to recent pregnancy women who report that they did not planned the pregnancy were 67% less to attend ANC than those who report they planed the pregnancy (OR=0.337) (Table 4.10).

The odds of utilizing ANC were more than three times likely for those with better knowledge of danger signs of pregnancy than those with poor knowledge (OR=3.541). Similarly the utilization of ANC were almost nine times more likely for women reported their husbands approves ANC than women with those whose husbands did not approves of ANC (OR=8.999) (Table 4.10).

4.3.1.2 Demographic and socio-economic determinants of DC utilization

For DC, just like ANC, some selected demographic, socio-economic and health related factors were found to have significant association with DC in the bivariate analysis. The overall factors were further tested by multivariate logistic regression, to investigate the overall net effects of these variables on delivery care attendance.

Variables entered into the model include age at last birth, parity, occupation, average monthly family income, marital status, media exposure; decision where to give birth, perception of distance to HI and ANC attendance.

Among the variables included in the binary logistic regression model, as depicted in Table 4.11, Parity, literacy status, average monthly family income, media exposure, decision were to give birth, perception of distance to health institution and ANC attendance were found to have significant effect on DC attendance (Table 4.11).

Table 4.11:- Multivariate logistic regression analysis results of respondents in DC town, January 20 to February 20, 2012 (n=419)

Variables	B	S.E	Sig	Exp (B)	95%C.I. for EXP(B)	
					Lower	Upper
Age at last birth						
15 – 19(RC)						
20 – 34	-.652	.427	.144	.535	.232	1.237
35 - 49	-.854	.618	.618	.426	.127	1.431
Parity						
Parity 1	1.046	.520	.044	**2.845***	1.026	7.886
Parity 2-4	.799	.471	.090	2.223	0.884	5.593
Parity 5 and above (RC)						
Literacy status						
No Schooling (RC)						
Schooling	1.351	.295	.000	**3.861*****	2.165	6.883
Occupation of the respondent						
House wife	-.069	.284	.809	.934	0.535	1.628
Others (civil servant students, maid servant, merchant etc...) (RC)						
Marital status						
Married	.695	.357	.052	2.004	0.995	4.036
Others(divorced, widowed, never married)(RC)						
Average family monthly income						
Below 401 birr	-.990	.404	.014	**.372***	.168	.821
401 - 1000 birr	-.254	.363	.490	.778	.382	1.587
Above 1001 birr (RC)						
Media exposure						
No exposure (RC)						
Radio or TV	1.098	.352	.002	**2.998****	1.504	5.975
Radio and TV	.764	.361	.034	**2.146***	1.058	4.351
Decision where to give birth						
Self/jointly with husband	.961	.311	.002	**2.615****	1.421	4.814
Others (husband or other family members) (RC)						
Perception of distance to HI						
Very close(RC)						
Average	-.736	.303	.015	**.479***	0.264	0.868
Too far	.330	.633	.602	1.391	0.403	4.808
ANC attendance						
Yes(RC)						
No	-2.000	.600	.001	**.135****	.042	.438

*** = P < 0.05 ** = P < 0.01 *** = P < 0.001; Source: - Author's Field Survey, 2012.**

Women with parity of one attend DC more than two times than parity of five and above (OR= 2.845). Literacy status has positive association with delivery care utilization. The multivariate analysis for DC revealed that respondent with education were more than three times likely to use to give birth at HI than uneducated women (OR= 3.861) (Table 4.11).

Regarding to income women health institution DC decrease with income, those women who report that the average monthly family income were below 401 attended DC less compared with those with monthly family income above 1000 (OR= 0.372) (Table 4.11).

Women who had exposure to Radio or TV were almost three times more likely to attend DC than those with no exposure to media (OR= 2.998). And those who reported that they had exposure to radio and TV attend DC two times more than those with no exposure (OR= 2.146).

The result of the multivariate analysis also revealed that the likelihood of attending DC among those women the decision where to attend DC was made by them selves or jointly with their husbands attended DC two times more than those decision made by their husband or others family members (OR= 2.146).

Women who did not attend ANC service were 86.5% less likely to attend DC than women who were ANC attendants (OR= 0.135) (Table 4.11).

4.4. Discussion

The study attempted to assess factors affecting utilization of maternal healthcare services specifically ANC and delivery services in Holeta town. The results of the present study revealed that 87.1% women sought at least one ANC from modern health care providers. However, a considerable number do not make the minimal number of visits (four) as recommended by the WHO.

The finding of this study is consistent with studies conducted in Jimma town, 90%, 82.3% in Jijiga town and 86.3% in Hadiya zone (Jira and Belachew, 2005, Zewdie, 2009 and Zeine et al, 2010). But the finding of this study in the level of ANC utilization is more in the study area than 2011 EDHS of ANC utilization for urban area which is 76% (CSA and ICF, 2012). One reason could be Holeta town is near to the capital city of Ethiopia and could have better opportunities for information and better access to health institutions than the other urban areas. The other explanation could be this study considers women who gave birth three years prior the survey and the recently started urban health extension program (HEP) is providing equitable access to promotive, preventive and select curative health interventions through health extension workers (HEWs). Among the services based on health packages, maternal health is part of the Family Health package.

In the study, the primary reasons given not to attend ANC services include being in a state of good health, no or little knowledge about ANC, being too busy, too long waiting time, poor quality of services, husband disapproval and far distance from home to health services etc. Others studies also revealed similar reasoning (Nigussie et al., 2004; Fenta, 2005 and Tewodros et al., 2009)

ANC is more effective in preventing adverse pregnancy outcomes when it is sought early in pregnancy and is continued throughout pregnancy (Mwaniki et al., 2002). 58.1% of women in this study made their first antenatal visits in their second and third trimester of pregnancy. This indicates that, women in the study area start ANC at relatively late stage of pregnancy. And only 66.3% women in the area made four and above ANC visits, which indicate that a considerable number of women conducted ANC less than four times which goes against the recommendation by WHO which states that the minimum ANC visit to be at least four times

(UNFPA, 2004). Similarly, this result is accordance with other studies (Fenta, 2005, and Nigussie et al., 2004). Out of all ANC attendants 76.7% of women had received at least once tetanus toxoid injection. Among women who received tetanus toxoid injections 73.6% of them received at least two during ANC visits.

ANC gives opportunities for delivering health information that can significantly foster the health of women and their infants. Almost 47.1 % of the respondents had no health education during ANC in the study area. But, the result of this study revealed that women who have had ANC were more likely to seek DC than women who had not attended ANC. However, the information/ counseling (education) given at ANC may further help women to decide on the right place to give birth.

The women in the two FGDs also point out that the barriers that affect the utilization of antenatal care services. The main reasons by the most of the focus group participants were lack of awareness, apparently being healthy, work overload either in the household or in the other daily activities, long waiting time, financial constraint, and confidence on local TBAs. According to FGDs participants some women did not attend ANC due to misconception on HIV test during ANC not knowing it is voluntary and confidential.

Home delivery is still a norm in many parts of Ethiopia; in this study, 161 (38.4%) births had taken place at home. This finding is more or less closer to the findings of the studies in Ayssaita and Dubte towns of the Afar Region which is 54.2% of births took place at home, in Jijiga Town 30% and 54% in Bahir Dar Special zone births practiced at home (Shegaw, 2008; Zewdie, 2009 and Fenta, 2005).This finding is some how less than the result of home delivery in EDHS 2011 which is 48.8 % of births taken place at home in urban areas (CSA and ICF, 2012). This difference of institutional delivery could be explained by the fact that the present study area is near to the capital city of Ethiopia and the women tend to have better access to health facilities, education, and information about maternal health care service. And also similar to that of ANC the health extension program could be a great reason for the difference.

Delivery care is an important component of efforts to reduce the health risks of mothers and children and increase the proportion of babies delivered under the supervision of health professionals in different health institution (Shanna et. al., 2004). Out of all home delivery in

this study only 7(4.0%) of the births were assisted by health workers but 154 (96.0%) were assisted by TBAs (TBA, close relatives/ friends, neighbors and TTBA).

The reasons given for home delivery include the need to give birth where relatives are nearby, dislike mistreatment of HWs, more trust on traditional birth attendants, transport problem and labour comes unexpectedly and often smooth. In the study most of the women agreed that being attended by a skilled attendant is beneficial to the mother and the newborn wellbeing. But considerable women think that home delivery has no risks.

According to women on both FGDs main barriers that affect the utilization of delivery care services are desire to deliver where their relatives in their surrounding when giving birth, bad experience with the health care system, unexpected delivery, transport problem and financial constraint are usually the reasons for practicing home delivery. The FGDs participants also indicated that some women with repeated experience of child birth did not want to go to HI because of their previous experience which often led them to believe that they do not need assistance from the health professional. Another reason mentioned by FGDs participant for women not to seek DC is their perception that mostly delivery care is provided by students who do not have adequate knowledge and experience.

From local cultural and religion point of view, almost the entire participant on both FGDs agreed that attending modern health care services is not prohibited. The Koran or Bible does not say anything about ANC forbidding delivery care services and so is similar with the various cultures. However, some participants revealed that some women have a fear of seeking the services because of traditional belief forbid them to seek the service provided by health institutions for both ANC and DC services.

Several studies found out that women's age plays a significant role in the utilization of maternal health care (Tewodros et al., 2009; Fantahun, 1992 and Sharma et al., 2007). In this study, it was found that women in the age group (35-49) were less likely to use ANC service than women in the age group of 15-19. Similar results were also found in other studies (Mohammed & Sileshi 1997 and Fantahun, 1992) also the 2011 EDHS shows that antenatal care from a skilled provider is more common among women of age 34 and younger than among women of age group 35-49 (CSA and ICF, 2012).This might be due to the fact that

younger women are more cautious about their pregnancies and sought trained professionals but older women tend to believe that modern health care is not necessary due to experiences and accumulated knowledge from previous pregnancies and births.

The findings of this study revealed that that education is strong predictor of maternal health care utilization for both (ANC and DC). The result is similar with other results which revealed that education has a positive relationship maternal health care utilization (Irma 1992; Mekonen and Mekonen, 2002; Zeine et al., 2010 and CSA and ICF, 2012). It is because that educated mothers are considered to have a greater awareness of the existence of maternal health care services and benefited in using such services. They are most likely to have better knowledge and information on modern medical treatment. Education is an opportunity to empower women; and empowered women have greater confidence and capability to make decision to use modern health care services for themselves and for the children.

Economic status of household is the most positive factor to differentiate the utilization of maternal health care service (K.M Mustanzur Ranman, 2009; Nigussie et al., 2004 and CSA and ICF, 2012). In this study woman who had an average monthly family income below 401 birr were less likely to attend both ANC and DC than those average monthly family incomes above 1000 birr. This could be because for respondents with low income, ANC may not be priority. Another reason could be that women with income more than 1000 birr in the study area may be able to access the private health institutions than the public health centers where mostly quality of service provided is lower.

The utilization of both ANC and DC services were associated with exposure to media in the study area. Thus, women who were exposed to radio or TV utilized ANC four times more likely than respondents who were not exposed. This could be due to the fact that women who were exposed to radio or TV have better chance of getting different information related to maternal health care than those who had no access. This could enhance women awareness to dangerous pregnancy related health problems. Consequently this might have motivated them to utilize ANC and DC services. The result is consistent with other studies (Kistiana, 2009; Nigussie et al., 2004 and Zewdie, 2009).

Quality is also important in maternal health programmes and can increase the likelihood that women facing obstetric emergencies will go to health facilities for life-saving care (Castro, et al., 2000). Among ANC attendants 8.5% report that there is long waiting time at ANC clinics and 12.3% report the quality was poor at health facilities and 6.3% reported that there was no personal respect from health workers for the attendants. These factors will act as inhibitors of future utilization, thus affecting the decision to seek care. As several studies from developed and developing countries indicate, health services barriers and women's perception of quality of ANC were important factors affecting women's utilization of maternal health care in a negative way. As most of the FGDs discussant indicated in their opinion there is a problem in the quality of care with some health institutes with low quality and mistreatment from some health professionals, which made some women not to seek the service on both ANC and DC services.

Husband's or partner's approval of ANC was most significantly related to antenatal care attendance. The result of the present study is found to be similar with previous studies in Ethiopia (Belay, 2006, Tewodros et al., 2009, Abera M. et al., 2011). A study in Addis Ababa showed the risk of non-attendance was high for pregnant women whose husband's attitude was negative or unknown (Fantahun, 1992). It is expected that having a husband who approves antenatal care significantly increase the likely-hood that a woman used antenatal care, irrespective of the husband's background characteristics. Therefore, efforts to improve husband's or partner's attitude would probably increase utilization of health services by women.

Women's attitude towards their current pregnancy, i.e. whether or not the pregnancy was planned, was found to affect ANC utilization. A women's attitude to wards her pregnancy and the presence of social support have been found to influence ANC use in developing countries (Stock, 1983). The study in Yigrgalem and Jimma also revealed the same result (Belay, 2006). The uses of ANC were significantly more among women with planned pregnancies (Fantahun, 1992). Unplanned pregnancy is highly suggestive of lack of access to appropriate family planning opportunities. ANC might be an appropriate point of contact for promotion of family planning.

Respondent's knowledge of potential danger signs of pregnancy is an important predictor of ANC utilization (Fenta, 2005).Women who experienced concern about any health problems (whether or not the health problem mentioned were indeed a risk to the mother) were more likely to attend ANC. In this study the result shows that knowledge on danger sign of pregnancy has a positive effect on utilization of ANC. Among most of the danger signs that the respondents could able to name include persistent vomiting, anemia, hypertension, leg swelling sever headache, and others. Also respondents able to mention danger signs of labour include prolonged labour, vaginal bleeding, early rupture of membrane, placental retention and mal-presentation. The positive impact of better health knowledge on ANC has been shown in other studies.

In this study besides the knowledge illness experience shows increase likelihood of attending ANC. The study is similar with study conducted in Addis Ababa that showed that absence of illness and lack of awareness are among the major reason for non-attendance of antenatal care (Fantahun, 1992). In this study many consult health professional for the illness on recent pregnancy but a considerable women report no action taken or consulted a traditional birth attendant or use traditional medicine to illness experience.

DC utilization may also be affected by the person(s) who make the decision on where to give birth. From the result of this study woman for whom the decision on place of birth made by them selves or jointly with their husbands were two times more likely to utilize DC than women decision where to give birth made by others . Women, who had low decision-making power, result from lack of access to and control over economic resources (Agarwal, 1997). This could be due to the high cost associated with pregnancy-related healthcare services in private health sector and/or women's low autonomy to make decision in the household. The study is consistent with the result of other study (Abera et al., 2011).

ANC visits had significant positive relation with utilization of DC services. In these study women who were non attendants of ANC were 86.5% less likely to utilize DC than ANC attendants. This is due to the fact that during antenatal care women are provided with information about the necessary follow-ups during pregnancy and after delivery and where to give birth at delivery. The study shows similar result with other studies (Fenta, 2005; Nigussie et al., 2004; Zewdie, 2009 and Abera et al. 2011).

CHAPTER FIVE

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusion

In conclusion, this study demonstrated that utilization of maternal health service (antenatal and delivery services) during the period of three year preceding the survey were relatively higher in the study area but inadequate in general. The study revealed that the ANC service utilization 87.1% and delivery care services utilization of 61.1% during the past three years preceding the survey. The majority of women sought at least one prenatal visit from modern health care providers during their recent pregnancy. From all the women included in the study, most of ANC attendant visits ANC services after the first trimester. Among the antenatal care service users a significant amount of women had less than four antenatal visits. The main reasons given by the individual women for not attending ANC were lack of awareness, apparently being healthy and being busy.

Almost all of home deliveries were attended by TBAs (TBA, Close relatives/ Friends, Neighbors and TTBA). The main reasons given by the individual for home delivery by women were because of the presence of relatives nearby at home than HI, being healthy, more trusts on TBA.

The most important factors influencing utilization of antenatal and delivery care services were and demographic and socio-economic in nature. The study result revealed that non-attendance of ANC was highest for those women with no education, who do not have exposure to media, whose husband's or partner's did not approves of ANC attendance, whose current pregnancy was unplanned, and those with poor knowledge on the danger signs of pregnancy was correlated with less attendance of antenatal care. Parity, income exposure to media and decision making on birth place found to have strong effect on health institution delivery care utilization.

The result raveled that most of women have a positive attitude towards maternal health care utilization. The study shows utilization of ANC has a strong positive effect on utilization of

safe child delivery care. ANC attendants were more likely to deliver in health facilities than non attendants.

5.2. Recommendations

The following recommendations were forwarded in line with what has been found in the study:

- Education was found to have an impact on the use of MHC services which suggests that improving educational opportunity for women may have a large positive impact on improving utilization of ANC and DC services. However, it is along term investment. As an alternative in short term, health promotion programs that centered on women with little or no education should be given.
- Community education about pregnancy, child birth and postpartum, particularly, the danger sign of pregnancy, labour and delivery and the actions ensuing complication need to get particular attention.
- Strengthening promotion of antenatal and delivery care and creating strong linkage between the two services.
- Initiating one close relative of women to enter to delivery room during child birth should be promoted to support women health institutional delivery.
- Improvement in family income should be addressed in the long term. Thus, the government and other development partners should design medium and long term plans to increase the income of poor households.
- Another major focus on intervention should be increasing the quality of health services delivered especially in public health sectors.
- Improving promotion of family planning services.
- Institutionalize in service and refreshment training to regularly up grade the skill of the health provider.
- Training of TBAs with the new role they should play in handling pregnancy and child birth.
- Finally, I suggest that the study area needs further research that can improve the outcome of the present study by explaining other factors/variables (which are not included in this study like, women control over finance in the household, time available for antenatal care, family responsibilities etc ...) which may have a significant effect on the utilization of ANC and DC services in the study area.

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ANNEXES

Annex A

Hosmer and Lemeshow Goodness of Fit Test

Hosmer and Lemeshow Goodness of Fit Test		
Models	**Sign.**	**-2LL**
ANC	0.956	162.109
DC	0.222	358.356

Source: - Author's Field Survey, January 20 to February 20, 2012

Where

HLT: – Hosmer and Lemeshow Test

-2LL = -2 Log Likelihood

ANNEXES

Annex B

QUESTIONNAIRE FOR HOUSEHOLD BASED SURVEY ON DETERMINANTS OF MATERNAL HEALTH CARE SERVICES UTILIZATION IN HOLETA TOWN

Verbal consent

Greetings

Hello! My name is _____ I am data collector in this study. I am working in research team of Addis Ababa University population study department.

We are conducting a study on determinants of maternal health care service utilization. You are kindly requested to be included in the study, which will have importance in improving maternal and child health services. The interview will take about 30-40 minutes. No information concerning you, as individual will be passed to another individual or institution without your agreement. Your participation is voluntary and you have the right to not participate fully or partially. If you agree to be included in the study I will start my questions by asking general identification points. Only honest answers would contribute to improvement of health planning.

"May I continue?"

If yes, continue interviewing

If no, thank and stop interviewing

Name of the interviewer_____Sign. _____Date of interview_____

Name of the supervisor _____ Sign. _____ Date_____

1. Households Identification

001. Questionnaire Code_____

002. Kebele _____

003. House number _____

004. How long have you been living in this town? _____

005. When was your date of gave birth ----/-----/----

N.B. Please fill on each answer sheet as follow:

- Time of start of interview_____
- Time of end of interview _____

PART 1: Questionnaire on Demographic and Socio-Economic Characteristics

No	Question	Alternative choice for responses	Skip
101	How old are you?	_____year.	
102	Have you ever attended school?	1. Yes 2. No ⟶	Skip to 104
103	What is the highest level of school you attended?	1. Elementary school 2. Secondary high school 3. Higher 99. Other specify_____	
104	What ethnic group do you belong?	1. Amhara 2. Oromo 3. Tigrie 4. Guragie 99. Other specify_____	
105	What is your occupation?	1. Housewife 2. Farming 3. Civil servant 4. Merchant 5. Daily Laborer 6. Student 7. Maid servant 8. Petty trade 99. Other specify_____	
106	What is your religion?	1. Muslim 2. Orthodox 3. Catholic 4. Protestant 99. Other specify_____	
107	What is your marital status?	1. Married 2. Divorced 3. Widowed 4. Never married 5. Separated	
108	What is the average family income per months?	_____birr.	
109	How often do you listen to the radio?	1. At least once a week 2. Less than once a week 3. Not at all	
110	How often do you watch television?	1. At least once a week 2. Less than once a week 3. Not at all	
111	How often do you read magazine/newspaper?	1. At least once a week 2. Less than once a week 3. Not at all	
112	What is the number of people who live usually in this household?	Total_____	

Annex C

FGD Topic Guide

1. Who would like to hear a little about your experience or knowledge about antenatal care and childbearing?
1.1. Who can tell us about antennal care?
1.2. Who can tell us about delivery care services?
1.3. Who would like to tell us dangerous health problems related to pregnancy and childbirth?
1.4 What are the causes?
1.5 What are the consequences?
1.6 What are the prevention methods?
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? 1. Yes 2.No, why?
2.2. Where do you think is the best place for ANC? Why?
What are the advantages?
3. What are the primary reasons for pregnant women not attend ANC clinics?
What are the advantages and disadvantages?
4. What are the primary reasons pregnant women should attend ANC clinics?
What are the advantages and disadvantages?
5. What do you think about the quality of care given in the ANC clinics?
6. Where do you think the best place for delivering a child? Why?
What are the advantages and disadvantages?
7. Who do think the best person to assist during delivery? Why?
What are the advantages and disadvantages?
8. What is your opinion towards quality of care in your area?
9. What is your opinion about ANC, and preferences to place of delivery from local cultural and religion point of View?

thesis is my original work and has not been presented for a degree in university and that all sources of materials used for this thesis have been d.

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en submitted for examination with my approval as university advisor.

es Dibaba (MSc., PhD fellow)

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