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SIGNIFICANCE OF HEALTH EXTENSION PROGRAM IN UTILIZATION OF MATERNAL HEALTH SERVICES IN OROMIA REGION, EAST SHOWA ZONE RURAL ADAMA WOREDA

BY

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BY

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By

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TABLE OF CONTENT

List of Tables

List of Figures

ACRONYMS

ANC	Antenatal Care
CEB	Children Ever Born
CHA	Community Health Agent
CI	Confidence Interval
CSA	Central Statistical Agency
CSPro	Census and Survey Processing
DHS	Demographic and Health Survey
EA	Enumeration Area
EDHS	Ethiopian Demographic and Health Survey
FDRE	Federal Democratic Republic of Ethiopia
FGD	Focus Group Discussion
FMoH	Federal Ministry of Health
FP	Family Planning
HC	Health Center
HEP	Health Extension Program
HEW	Health Extension Worker
HH	Household
HP	Health Post

HSDP	Health Sector Development Program
HSEP	Health Service Extension Program
ICPD	International Conference in Population and Development
MDG	Millennium Development Goal
MMR	Maternal Mortality Ratio
PAD	Professional Assisted Delivery
PHC	Primary Health Care
PNC	Post Natal Care
PPS	Probability Proportional to Size
PRB	Population Reference Bureau
SBA	Skilled Birth Attendant
SNNPR	Southern Nations, Nationalities and Peoples Region
SPSS	Statistical Package for Social Studies
TTBA	Trained Traditional Birth Attendant
TVETS	Technical and Vocational Education Training School
UN	United Nations
UTBA	Untrained Traditional Birth Attendant
VIF	Variance -Inflation Factor
WHO	World Health Organization

Abstract

Even though availability of maternal health care service is essential for improvement of maternal health, little is known about the utilization in rural areas where the Health Extension Program is implemented. This study is aimed at assessing the significance of health extension program in improving the utilization of maternal health service in rural Adama towards the maternal health care services.

The study utilized quantitative and qualitative data collected in the month of March 2010. The study is cross-sectional by design and applying a multistage sampling technique a total of 582 women who had at least one live birth in the five years preceding the study and/or pregnant at the time of the study were selected from four kebeles. A univariate, bivariate and multivariate analyses were done using frequencies, x^2 and binary logistic regressions, respectively.

Among all women, 51.9%, 7.9% and 10.4% received antenatal care, professional assisted delivery and postnatal care services, respectively. From antenatal care service attendants, about 35% of women received the service from health extension workers. Women in the health extension program intervention kebeles were more likely to receive antenatal care service (OR= 7.090, 95% CI= 4.450-11.297) and gave birth attended by professionals (OR = 3.018, 95% CI 1.019 - 8.939) than those in non intervention kebeles. Within women in the intervention kebeles 75% were antenatal care attendant and 12.3% received professional attended delivery care service whereas of women in non intervention kebeles - only 28.6 % and 3.4% of women were received antenatal and professional attended delivery care service, respectively.

The overall impression given by this study is that, women in intervention kebeles utilized services better than in non-intervention kebeles. The findings suggest that improvement of maternal health in rural areas would require the introduction of several measures, the most effective being the expansion of community level program interventions while strengthening the available programs to provide quality service.

CHAPTER ONE

INTRODUCTION

1.1. BACKGROUND

Around the world, people celebrate the birth of a new baby. Societies expect women to bear children, and honour women for their role as mothers. Yet in most of the world, pregnancy and childbirth is a risky journey. Maternal mortality—the death of women during pregnancy, childbirth, or in the 42 days after delivery—remains a major challenge to health systems worldwide. It is one of the Millennium Development Goals (MDG 5) which is off track in most developing countries. The most recent research finding on maternal mortality measures indicated that, there were 342,900 maternal deaths worldwide in 2008, down from 526,300 in 1980. The global Maternal Mortality Ratio (MMR) decreased from 422 in 1980 to 320 in 1990, and was 251 per 100 000 live births in 2008. These findings show the substantial variation in performance across countries in reduction of the MMR. Countries in North Africa and the Middle East, parts of Latin America, and South and East Asia had the largest declines. Increases in the MMR have been documented in sub-saharan African countries with large HIV epidemics (Hogan *et al.*, 2010).

Global status of maternal health provides one of the most striking examples of disparity between rich and poor countries. Of the approximately half a million maternal deaths and four million newborn deaths that occur each year, 98%–99% occur in the poorest countries of the world (WHO *et al.,* 2007). The risk of maternal death in developing countries particularly in sub-saharan Africa is estimated to be one in 16, while for the developed countries it is about one in 3800 women (UN, 2007). About half of the nearly 120 million women who give birth each year experience some kind of complication during their pregnancies and between 15 and 20 million develop disabilities such as severe anaemia, damage to the reproductive organs or nervous system, chronic pain, and infertility (PRB, 2002).

The research by Hogan *et al.* (2010) indicated that more than 50% of all maternal deaths were in only six countries in 2008 including Ethiopia (Nigeria, Pakistan, Afghanistan and

Democratic Republic of Congo). The estimated MMR of Ethiopia was based on the census, surveys, DHS and published work reporting population based studies on maternal mortality at national or sub national level. The maternal mortality ratio of the country was 1061 in 1980; 968 in 1990; 937 in 2000 and it further decline to 590 (358-932) in 2008 (Hogan *et al.*, 2010). The two rounds DHS in Ethiopia, found that 263 and 197 maternal deaths giving MMR of 871 and 673 per 100,000 live births, respectively for the periods 1994-2000 and 1998-2004, respectively (CSA and ORC Macro, 2006). Maternal deaths accounted for 21 percent of all deaths to women age 15-49; in other words, more than one in five Ethiopian women who died in the seven years preceding the survey died from pregnancy or pregnancy-related causes (CSA and ORC Macro, 2006).

The tragedy and opportunity is the vast majority of maternal deaths and disabilities could be prevented through providing appropriate reproductive, particularly maternal health services during pregnancy, labor and child birth and after pregnancy. However, millions of women still endure the risks of pregnancy and childbirth under conditions virtually unchanged over time.

Improving maternal health and reducing maternal mortality have been key concerns of several international summits and conferences since the late 1980s, including the Millennium Summit in 2000. However, maternal mortality has decreased at an average of less than 1% per year globally and approximately 0.1% annually in sub-Saharan Africa between 1990 and 2005. Reducing maternal mortality requires increased attention to improved health care for women (WHO *et al.*, 2007). Global initiatives to intensify policy intervention for maternal mortality began with the Safe Motherhood Initiative in 1987. Since the promotion of safe motherhood initiative, the interventions for preventing and treating complications of pregnancy and childbirth are well-recognized, but greater commitments and investments are needed to make such interventions effective. Maternal mortality measure reflects the accessibility and utilization of antenatal, delivery and immediate post delivery care available to women. Maternal health is a good indicator of both health status and the level of socioeconomic status attained in any community.

Ensuring safe motherhood requires recognizing and supporting the rights of women and girls to lead healthy lives. It requires raising awareness of complications associated with pregnancy and childbirth, providing access to high-quality health services (antenatal, delivery, postpartum, family planning, etc.), and eliminating harmful practices.

Maternal health care includes care during pregnancy, labor and childbirth and postpartum period and should begin from early stage of pregnancy. Certain obstetric emergencies cannot be predicted through **antenatal** screening. One of the most important functions of ANC is to offer health information, advice about pregnancy related complications and possible curative measures and services that can significantly improve the health of women. Antenatal care can also play a critical role in preparing a women and her family for birth by establishing confidence between the woman and her health care provider and by individualizing promotional health messages.

Further antenatal visits may raise awareness about the need for care during **delivery** or give women and their families a familiarity with health facilities that enables them to seek help more efficiently during complication. In addition, ANC appears to have a positive impact on the utilization of **postnatal** healthcare services

The World Health Organization recommended at least four ANC visits in the course of pregnancy (WHO, 2009). However, uptake of these services is very limited in Ethiopia and far from universal even in settings where they are widely available. Therefore, increasing the utilization of available maternal care service is undeniable strategy to reduce deaths related to pregnancy and child birth and also improve the health of mothers. These interventions are limited in the rural areas where the government of Ethiopia has given attention in recent years.

Promotion of maternal health has been one of the most important components of the Ethiopian government Health Sector Development Program (HSDP) planning which shows commitment to the safe motherhood program within the wider context of reproductive health. The government established and has been implementing the Health Sector Development Program (HSDP) since 1997/8, which incorporates a 20-year health development strategy, through a series of five-year investment programs, to achieve universal access to essential primary health care services. The first phase of HSDP was completed in 2002 and the second in 2005. This necessitated the development of the current phase of HSDP (III), which covers a period of five years, i.e., 2005 to 2010. The focus area of the current HSDP is maternal health, child health, HIV/TB and malaria. There is a strong focus in rural areas, and in extending health services from static to outreach facilities (FMoH, 2005).

According to the two EDHS results, antenatal care service utilization in Ethiopia is at low level and almost there was no change during the two survey periods: 27 % (at least one visit) in 2000 and 28 % in 2005. The percentage of women who made four or more ANC visits increased from 10 % to 12 % during the same period (ORC Macro, 2007).

Skilled care during labor and child birth is the lowest even as compared with other sub-Saharan African Countries. The percentage of births delivered by a health professional is 10 times higher in the Cameroon (62%) than in Ethiopia (6%). Similarly, the proportion of births delivered in a health facility is more than 10 times higher in Senegal (62 percent), Malawi (57 percent) and Lesotho (52 percent), than in Ethiopia (5 percent). (ORC Macro, 2007)

This study uses data gathered from women who had at least one live birth during the five years before the study and/or from women who had no previous live birth with in or out of the reference period but pregnant at the time of the study. The knowledge, attitude and practice of women living in health program intervention area and non intervention area was assessed. Therefore, this study is aimed at assessing the change that has taken place due to intervention in the level of maternity service utilization in Adama rural kebeles.

The result of the study indicated that there is an improvement in maternal health care services utilization after the initiation of health extension program intervention in 2004/2005. From all women, 51.9%, 7.9% and 10.4% received antenatal care, professional assisted delivery and postnatal care services, respectively. From antenatal care service attendants, about 35% had received the service from health extension workers. Women in the health extension program intervention kebeles were more likely to receive maternal health care services. This improvement in the utilization of maternal health services

1.2. Statement of the Problem

According to the last Ethiopian population and housing census result, the total population of the country in 2007 was 73.92 million of which 37.3 million are male and 36.62 million are female. Ethiopia is one of the least urbanized countries where the majority of the population; 83.8 percent, resides in the rural areas and has little access to any type of modern health institution (FDRE, 2008).

Ethiopia suffers from a severe shortage of both health personnel and accessible facilities. Approximately 30 percent of households were estimated to live more than 10 kilometers

away from the nearest hospital, health center, or health station. Urban areas with 4–6 percent of the total population have 44 percent of all health facilities. Moreover, most facilities have inadequate supplies of drugs and equipment, poor equipment maintenance, and a deteriorating infrastructure (Sameh *et al.,* 2009). In the year 2006/07 physician-to-population ratio of Ethiopia was 1:42,706 and it remains among the lowest in the world. The nurse-to-population ratio in the same period was 1:4,250. Ethiopia's maternal mortality ratio is among the highest by the developing countries standard, and continues at very high level (FMoH, 2007).

Researches in developing countries indicated that, the poor or nonexistence of health care service; low utilization rate and shortage of trained personnel during pregnancy, childbirth and postpartum period are the major factors which contributed to poor maternal health outcome in these countries.

Analysis of factors associated with maternal death in Kenyan Hospitals indicated that, in addition to higher maternal age, high fertility, lower educational attainment, lack of antenatal clinic attendance and unobserved hospital factors such as resources, equipments supplies and hospital administrations and management are associated with maternal death (Magadi *et al.,* 2001). Attendance at delivery by skilled health professional is essential. The regions with the lowest proportion of skilled health attendants at birth are South Asian and Sub Sahara Africa, which also have the highest number of maternal deaths (UN, 2007).

Absence of skilled birth attendant at birth is another risk factor increasing the probability of death (World Bank, 2002). A recent research in Ethiopia by Abraha and Nigatu (2009) indicated the significant association between trend of maternal mortality ratio and health service coverage. The analysis was based on 14 years; covering 1995-2008, data on health and health related indicators by the FMoH. The research revealed that the trends of total fertility rate, physician per 100,000 population, skilled birth attendance and postnatal care coverage were found to have significant association with Maternal Mortality Ratio trend. Skilled birth attendance rate and postnatal care coverage had negative association with maternal mortality ratio. The finding suggested that, to reduce maternal mortality ratio to a greater extent, skilled birth attendance rate and postnatal care coverage should get increased (Abraha and Nigatu, 2009)

The percentage of women who receive no antenatal care is 37 percent in Africa, 35 percent in Asia, and 27 percent in Latin America and the Caribbean. Each year, 60 million women give birth with the help of an untrained traditional birth attendant or family member or with no help at all. The majority of women in developing countries receive no postpartum care (Boender *et al.,* 2004).

In Ethiopia lack of health services, low utilization of health services, high fertility, harmful traditional practices such as early marriage and female genital mutilation are among the likely factors for the high maternal mortality (ESPS, 2008).

Maternity services can play a vital role in achieving improved reproductive outcomes in various societies, particularly in rural settings (Bhatia, 1995). However, utilization of available services continues to be low throughout the world, and sub-Saharan Africa is no exception, it being particularly evident in rural areas. In most rural areas of Ethiopia like other African countries, rural women's access to maternity care service is relatively very low; women had to travel long distance to get to the nearest health facility. The scarcity of vehicles, especially in remote areas, and poor road condition can make it more difficult for pregnant women to reach the nearest health facility. Walking is the primary mode of transportation even for women in labor (Yared and Asnakech, 2002).

Policy initiatives, in health and population, have emphasized the importance of enhancing access to a basic package of quality primary health care services. As part of the HSDP effort, in 2003, the Ethiopian Federal Ministry of Health (FMoH) launched a new health care plan, the "Accelerated Expansion of Primary Health Care Coverage," through a comprehensive Health Extension Program (HEP). Recognizing the huge gap between need and health care services available, the FMoH has focused on "providing quality promotive, preventive, and selected curative health care services in an accessible and equitable manner to reach all segments of the population, with special attention to mothers and children. To make the health service available in rural kebeles, the government constructed a number of health service facilities equipped with the necessary medical supplies, and deployed two Health Extension Workers (HEWs) per kebeles, which covers nearly 5000 population. The HEWs work with community volunteers and village administration units to provide 16 different primary health care services. The Health Services Extension Program was adopted and included a comprehensive maternal and child health package (including child health services such as an Expanded Program of Immunization and Integrated Management of Childhood

Illness); and reproductive health services including maternal health care services - antenatal care, safe and clean delivery and postnatal care services (Sameh *et al.,* 2009)

The importance of socio-demographic factors, cultural and service factors in shaping the use of maternity service in rural setting has been indicated on various researches. Accordingly, the government of Ethiopia has made efforts in response to the findings and recommendations of researchers. According to EDHS 2005, the most important reason of women for not seeking health care was concern that there may not be a health provider (81 percent) and for nearly 68%, it was of women concerned about distance from health facility.

As it is known the focus of health service extension program is to avail service in accessible and equitable manner so that all segments of the society can benefit from it. Differential in service utilization among urban and rural areas have given evidence on the relationship between accessibility and use of health service and improvement in health status. After the initiation of health extension program in rural areas no national level community based survey was undertaken to assess the significance of the intervention in changing health related indicators.

Information on the impact of the health extension program on the knowledge, perception and level of maternity service utilization has becomes an important issue of the time and most national and international organizations are in need of it. The few existing studies tend to be urban based and tends to focus on the socio demographic factors influencing service utilization. However, addressing maternal health issues should encompass social, cultural, health system and health policy factors as well. Studies concerning the issue are scarce in the Oromia Region, particularly in Adama area.

Therefore, this study explored the significance of the Health Extension Program (HEP) in the knowledge, attitude and utilization of maternal care service in rural Adama wereda, East Showa zone of Oromia region. Consequently, the results provide information for designing relevant program planners and implementers to strengthen the health extension program and for planning of interventions necessary to improve service utilization in the study area. This in turn will have far reaching implication for women's health status as well as for the achievement of MDG 5 – improve maternal health.

CHAPTER TWO

LITERATURE REVIEW

2.1. Model and Factors of Maternity Service Utilization

2.1.1. The 'Four Delays' Model

Research shows that women's lives can be saved and their suffering reduced if health systems address serious and life-threatening complications when they occur. One of the best ways to do this is to make sure that women receive skilled care at delivery and have access to high-quality treatment if pregnancy complications occur. Yet, women face multiple delays in seeking and receiving lifesaving care when they need. They may not recognize the signs of life-threatening complications (**Delay One**). They may postpone deciding to seek care (**Delay Two**). It may take too long to reach appropriate care (**Delay Three**). Women may receive substandard or slow care at health facilities (**Delay Four**). Making motherhood a safer time in women's lives requires continuous and focused improvement of health systems and commitment at all levels: in the home, community, clinic, country, and at the international level (Elizabeth *et al.,* 2002).

2.1.2. Factors of Maternity Service Utilization

In this section the socio demographic and service factors determining utilization of health service during pregnancy, child birth and postpartum period are discussed as follows:

2.1.2.1. Socio- Demographic Factors

This section discussed findings of studies which examined the factors affecting maternity service utilization particularly ANC service in rural areas of developing countries. ANC service is preferred due to its importance in initiating women to seek care during childbirth and postpartum period. Some of these factors are discussed as follows.

Parity: Studies found strong associations between parity and ANC utilization. Higher parity was generally a barrier to adequate use of ANC service, a study conducted in Addis Ababa

showed that non-attendance is highest for those pregnant women, who are of high parity (Mesganaw, 1992). Another Study conducted in Southern Ethiopia also indicated that women with higher parity tend to delay prenatal care than lower parity (Belay 1997).

Education: Studies found that women's education was the best predictor of ANC visits. Women with better education were more likely to receive the recommended number of ANC visits. Regardless of their income difference, more educated mothers are aware of early care and birth outcome and are more likely to start ANC visits early than less educated women (Belay, 1997).

Birth Interval: Studies in India and Kenya found that birth interval were associated with ANC visits. Births occurring after an interval of more than three years received more frequent ANC visits than those where the preceding birth was within two years (Magadi *et al.,* 2000, Navaneetham & Dharmalingam 2002).

Marital Status: Married women were more likely to receive ANC and seek earlier than single or unmarried women (McCaw-Binns *et al.,* 1995). Unmarried women in Kenya, who started childbearing before 20 years of age, had fewer antenatal visits than married women who started at a later age (Magadi *et al.,* 2000). The study in southern Ethiopia (Belay, 1997) indicated that being pregnant out of wedlock avoid or delay the use of prenatal care or no prenatal care.

2.1.2.2. Service Factor: Availability and Accessibility

Access to and use of maternity care services is critical to the survival of both the mother and her baby. Many people believe access to this service should be promoted as an essential human right. However, the reality is two-thirds of mothers in the developing world deliver at home and almost half are attended only by family, neighbours, or unskilled attendants and of course, some deliver alone.

In Bangladesh, for example, up to 80 percent of urban and virtually all rural births take place at home. Furthermore, access to this service is tied more closely to economic status than any other health intervention. For cultural and other reasons, some women do not seek out a skilled attendant and/or a facility for the birth even when the service is available. Care is often substandard and mothers may be treated poorly. In some areas, health facilities lack basic supplies and conditions are not hygienic (PRB, 2004).

A community based program in the Gadchiroli district of India, has established strong evidence that accessibility of service is curtail for use. In the district a program (SEARCH) has developed a remarkable approach to home-based health care (83 percent of births in rural India occur at home) that benefits both newborns and their mothers. The villagers have virtually no access to health facilities. SEARCH introduced neonatal care through trained village health workers and trained birth attendants, who provide health education to mothers, support breastfeeding and maintenance of body temperature, and recognize danger signs in mothers and babies. By the third year of the program, SEARCH had recorded a 62 percent reduction in the neonatal mortality rate as well as a significant reduction in various neonatal and maternal morbidities for the intervention areas (Anne *et al.,* 2002).

In rural areas where there is no or little access to health facilities providing maternity care, the challenges of women are very severe. In most rural areas in Africa, rural women access to maternity care service is relatively very low; women have to travel long distance to get to the nearest health facility. The scarcity of vehicle, especially in remote areas, and poor road condition can make it more difficult for pregnant women to reach to the nearest health facility. Walking is the primary mode of transportation even for women in labor (Yared and Asnakech, 2002).

One major problem is that, in many countries, the bulk of public spending on health is directed toward hospitals in urban areas and specialist care at the expense of rural primary care facilities. As a result, primary care facilities are often short-staffed and lacking supplies. Thus, many patients bypass these facilities and go directly to hospitals for care, expecting basic health services. This process, in turn, provides further justification for public spending on hospitals.

A common prescription for health systems is to direct more resources toward primary-level facilities and care. By increasing and strengthening these services, programs could address important accessibility issues: travel time to the nearest facility or to a facility with needed or desired services and residence in a rural or neglected area, where services are scarce or unavailable. In Ghana, researchers estimated that reducing the average distance to the nearest public clinic could increase use by more than 90 percent (PRB, 2004).

Since the late 1980s, many developing countries have initiated efforts to improve their health care systems. A number of factors prompted these efforts: insufficient funding for health; the

lack of basic health services for many citizens; and the poor quality, low accountability, and inefficiency of existing health services. To address these issues, many governments launched health sector reforms, which are intensive long-term efforts to strengthen and improve health systems and, ultimately, improve their citizens' health status (PRB, 2003).

During the 1990s—especially after the 1994 International Conference on Population and Development (ICPD)—many countries introduced initiatives to expand and improve reproductive health care. The ICPD Program of Action called for a wide range of social investments and specifically for primary health services that would provide a comprehensive package of reproductive health care. Such care includes family planning information and services; safe pregnancy and delivery services and prevention of sexually transmitted infections including HIV/AIDS. Health sector reform may involve a number of strategies, policies, and interventions designed to strengthen the health system so that it can better achieve public health goals (PRB, 2003). A strong health system will possibly activate the commitment of the health service provider and managers to serve the community with full capacity.

2.2. Closing the Urban-Rural Gap

Primary health care—the approach identified in the 1970s for achieving 'Health for All' by 2000—is still an important strategy for reaching the underserved. Although the definition of primary health care varies, a common aim is to make basic health services affordable and widely available, especially to poor and rural people. The ultimate goal is to improve health quickly at relatively low cost. This approach led many countries to dispatch thousands of community health workers to villages and rural areas to deliver basic, low cost services to the poor (Dara, 2004).

As an example, in the 1970s, the Iranian government's policies emphasized prevention as a long-term investment, allocation of resources to rural and under-privileged areas. A network of district teams to manage and oversee almost 2500 village-based rural health centres was established. Each of the rural health centres oversees 1–5 smaller points of care known as "health houses". With 17, 000 of these health houses, over 90% of the rural population has access to health care. In remote rural areas, these health houses are staffed by Behvarz (multi-purpose health workers) who are selected by the community, receive between 12 and 18 months training and are then recruited by the government. The district teams provide

training based on problem solving, as well as ongoing supervision and support. Over the years, the Primary Health Care (PHC) network has grown and is now able to provide services to over 24 million people in rural villages and small cities by bringing the points of care closer to where people live and work. Using this approach the rural health service utilization rates in Iran are the same as in urban areas. The progressive roll-out of this system has helped to reduce the urban-rural gap in maternal mortality (WHO, 2008).

2.3. Health Service Extension Program in Ethiopia

The Health Extension Program (HEP) is considered as the most important institutional framework at community level. The objective of the HEP component is to expand and achieve universal health coverage by the end of 2008 and aimed at improving the delivery of primary health care service to the most neglected rural population of Ethiopia. The overall aim is to improve access and equity by the provision of essential health interventions at kebele and household level with a focus on sustained preventive health actions and increased awareness. (FMoH, 2004)

At the core of the HEP is a sizeable cadre of HEWs who are trained to implement a health extension package of 16 health care activities at kebele level. All HEWs are at least 18 years of age, with a minimum of 10^{th} grade education and recruited from their community. HEWs received a one-year course of instruction and field training provided by Technical and Vocational Education Training Schools (TVETs), and operated by the Ministry of Education. Upon completion of the training, they are assigned in pairs, to kebeles where they staff health posts and work directly with individual families. Health posts, therefore, are becoming the first level of healthcare for the community, emphasizing preventive care.

Pilot implementation was launched in five regions in 2002/03 and encouraging results were seen in terms of community's acceptance and demand for services provided through Health Service Extension Program (HSEP). Health extension package encompasses two major components: the Disease Prevention and Control and Hygiene and Environmental Sanitation. Under the first component, family health activities such as maternal and child health, family planning, immunization, nutrition, adolescent reproductive health are implemented (FMoH, 2008).

2.4. Conceptual Framework

Using the available literatures the following conceptual framework is developed for the study

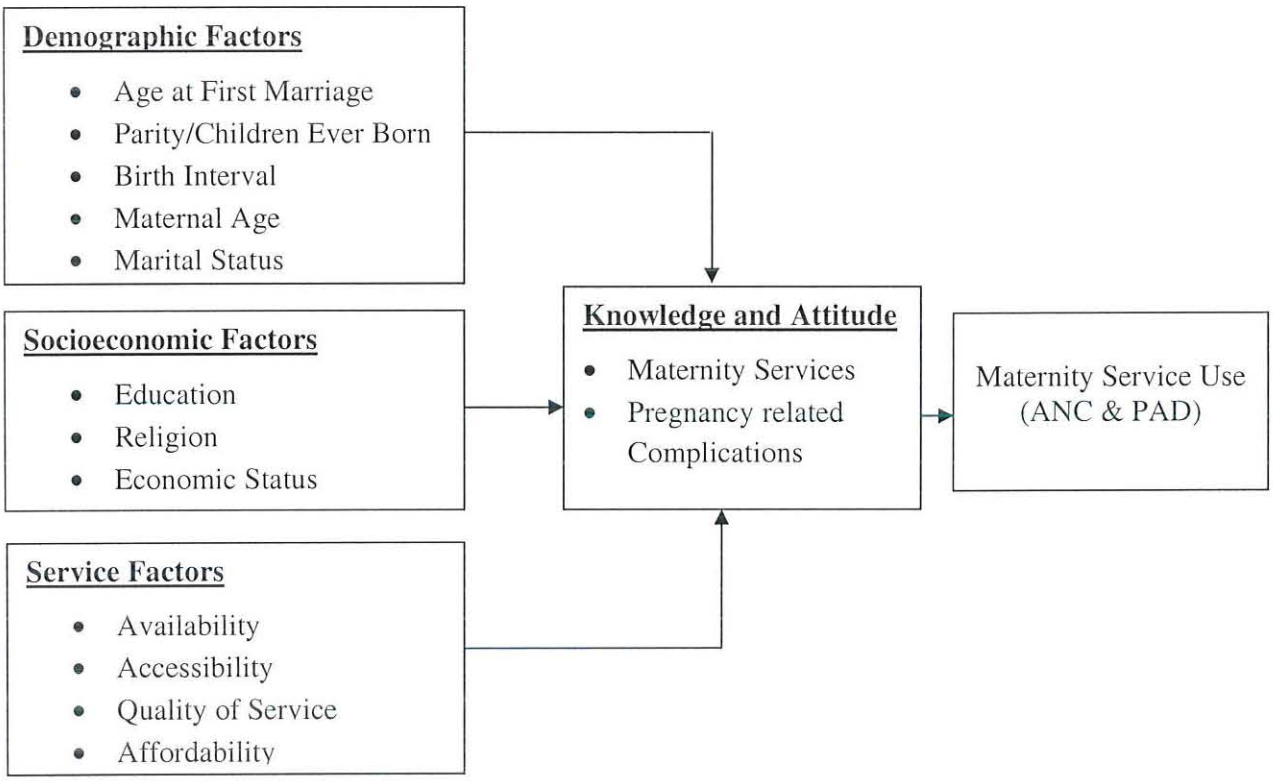


Figure 2.1: Conceptual Framework

2.5. Objectives and Hypothesis of the Study

Objectives

The main objective of the study is to assess the significance of health extension program intervention in maternal health care service utilization in rural Adama Woreda, East Shewa Zone of Oromia region.

The specific objectives are:

- To assess the contribution of health extension program in enhancing the knowledge, attitude and practice of women regarding maternal health care service
- To identify factors affecting antenatal and professional assisted delivery care seeking behavior of women in the study area.

Hypothesis

- The level of knowledge, attitude and practice of maternal health care service is hypothesized to be better among women living in the HEP intervention kebeles than women in non intervention kebeles.

2.6. DEFINITIONS OF TERMS/CONCEPTS

Antenatal Care Attendant – An eligible woman who received at least one antenatal care service during her last pregnancy that terminated in a live birth (not still birth or abortion) and/or during her current pregnancy.

Antenatal Care non- Attendant – An eligible woman who never attended antenatal care during her last pregnancy that terminated in a live birth (not still birth or abortion) and/or for her current pregnancy.

Current age of Women – age of women at the time of the study

Intervention kebeles –rural kebeles where Health Service Extension Program has been implemented for more than four years before the study.

Kebele – the lowest administrative unit in Ethiopia

Knowledge on danger signs of pregnancy, labor and childbirth and after birth – at least two of the conventional signs mentioned

Maternal Age – is age of women at the time of last live birth. For pregnant women who had no live birth in reference period, maternal age is their age at the time of the study.

Non Intervention kebeles - are characterized as rural kebeles with no or recent Health Service Extension Program implementation.

Professional Assisted Delivery (PAD) service utilization- giving birth attended by skilled attendant and health extension workers.

Reference period – is the five years prior to the study period, i.e., February 2005 – date of data collection

Stratum – classified based on the years of health extension program (HEP) implementation as intervention and non intervention kebeles.

2.7. STUDY VARIABLES

To examine the significance of health extension program it is reasonable to use indicators, which measure how well the health system is providing maternity care service. The most widely adopted process indicator is "skilled care before, during and after delivery". These indicators are less expensive and simpler to collect from women. Women living in the study area were provided information on whether they received professional health care during their pregnancy, child birth or postpartum period. For women who had no live birth during the reference period but pregnant at the time of the study, information on ANC service use were collected. In addition to service use, the study captured data on the knowledge and attitude from all eligible women.

Dependent Variables- ANC and PAD service utilization (use and non - use).

Independent Variables – are variables chosen to measure the maternal health care utilization factors including

- **Demographic** - women's current age, marital status, children ever born, age at first marriage, maternal age, birth interval, etc
- **Social factors** - Educational status (women/husband) and religion
- **Knowledge and Attitude** - knowledge about danger signs during pregnancy, childbirth and postpartum period, source of information on danger signs, importance of skilled care during pregnancy and childbirth.
- **Service factors –** Knowledge on the availability of HEP and study area

2.8. LIMITATIONS OF THE STUDY

The study might be constrained by a number of factors including:

- Secondary data were not used due to inadequacies in the records held by health extension workers.
- The behaviour of the study may affect the results; respondents may not recall dates, number of ANC visits, months of first visit, etc.
- The other limitation is, we cannot be certain that the observed improvement in maternity service uptake is due to factors other than the program intervention.

CHAPTER THREE

METHODOLOGY

3.1. STUDY AREA

From the nine regional states of Ethiopia, Oromia regional state has the largest population having 27.2 million people (accounts 36.7% of the country's population) and constitute in 18 zones. The region, like other regions of Ethiopia, is predominantly rural with 87.6% of the population living in rural areas in 2007 (FDRE, 2008).

In the region, there were 23 hospitals owned by the government and 8 by nongovernmental organizations, private or others, 3,758 health posts, 242 health centres owned by government 5 by others in year 2007/08. The potential health service coverage in the region was 82.1% in 2007/08. In the same period, the physician to population, nurse (both senior and junior) to population and health extension workers to population ratio was 1:104,728, 1:16,627 and 1:3,327, respectively (FMoH, 2009).

According to the 2005 Ethiopian DHS, in the region 24.8 percent of women who had given a live birth in the last five years before the survey attended at least one ANC visit, 4.8 percent given birth attended by health professionals and 4.5 percent of women received postpartum check up from health professionals (CSA and ORC Macro, 2006).

Adama woreda is found in East showa zone of Oromia regional state. The woreda excludes Adama town and constitutes four small towns and 43 rural kebeles. According to the last population and housing census, a population of 155,321; 78,997 male and 76,324 female reside in the woreda. As in the other parts of the country, the majority of the population in the woreda, i.e., 129,003 (83 percent) resides in rural areas. Women within the reproductive age (15-49) group accounts 43% of the total female population in rural Adama woreda (FDRE, 2008). Adama is one of the woreda where the health extension program pilot tested and implemented. The intervention started in most of the kebeles immediately after the launching in 2004/05. It is now a high time to assess the impact of the intervention after five years of program intervention.

3.2. STUDY DESIGN

The community based cross-sectional study employed both quantitative and qualitative data. The target population was women who had at least one live birth in the last five years before the study and/or pregnant at the time of the study. Women having more than one live birth during the reference period, information were collected on the most recent live birth. The main field work, i.e., data collection was carried out during the month of March, 2010. Thus, live birth in the last five years and most retrospective information obtained from respondents refer to the period from February 2005 to the date of interview.

3.3. DATA COLLECTION

Measurement Tools

A questionnaire having five sections was prepared for interviewing eligible women. The first section of the questionnaire was designed to capture information on women's socio demographic characteristics. The second section captured information on women's reproductive life. The third section included the women's knowledge on complication/danger signs that could occur during pregnancy, child birth and postpartum period and attitude of women towards maternity service. The fourth section was intended to capture information on maternity service utilization practice of women included in the study. Women who visited health post for any one of the maternity care services during the reference period were asked on their perception towards the service provided by the Health Extension Workers/Health post focusing on its quality. The last section captured information on quality of care provided by health extension workers. The questionnaire was translated from English to Oromiffa Language. Two focus group discussions were undertaken using focus group discussion guideline.

Field Work

The fieldwork was carried out by three interviewers and one supervisor having extensive experience in data collection of similar surveys. The researcher provided theoretical training for one day and the practical training for half a day. Trainees interviewed two to three women during the practical session for the purpose of pre-testing the questionnaire and familiarize with the data collection tool. After the practical session, discussion were made on the findings of the pre-test and based on the result minor revision was made.

Orientation was given for the supervisor on how to organize and supervise the data collection and on the techniques of detecting errors and correcting them on spot. The orientation also focused on how to minimize non response rate through system of revisiting and ensure the quality of data through observation of the interviewing, editing and re-interview of sample of women. Focus group discussions were conducted by the supervisor, one note taker and the principal investigator. The household listing took 2 - 3 days/kebele and actual data collection 14 days (from March 2 – 19, 2010).

3.4. ETHICAL CONSIDERATION

Before undertaking the data collection, permission was assured from the Oromia Regional Health Bureau, East Showa zonal Health Department, Adama woreda Health Bureau, kebele administrative officials and local community leaders. Interviewers provided information on the purpose of the study and explained the objectives to the selected women. They also assured the confidentiality that any information concerning them will never be passed to a third person or institutes without their consent. On the questionnaire there was no any part that specified the name of the respondent. All selected women were requested whether they agreed to participate in the study or not. In addition to women participated on the household interview, focus group participants were also provided their verbal consent to conduct the discussion.

3.5. SAMPLE DESIGN

A multi-stage sampling technique was employed to select the unit of analysis – pregnant women or/and women with at least one live birth in the reference period. The sampling design combined stratified, simple random sampling and systematic random sampling methods. The homogeneity stratification was based on the number of years of health extension program implementation as - *with four and more than four years* and *without/recent* health extension program implementation. The first stage sampling units were kebeles and the second stage units were enumeration area/zone. In the last stage sampling, women who had at least one live birth or/and pregnant during the study were selected.

The sampling frames for each stratum were prepared using the list of kebeles which was obtained from the Central Statistical Agency (CSA) based on the 2007 National Population and Housing Census and the woreda health bureaus records. Kebeles to be included in the study were identified and selected based on the number of years of program implementation.

3.5.1. Sample Selection Procedure

Standardized sampling formula for random sampling technique was used to calculate a target sample size and resulted in a sample size of 588 women in both strata. This sample is allocated among the enumeration area (for this study Enumeration area refers to the local classification/categorization of kebeles in to zone) using probability proportional to size –PPS method. Figure 3. 1 gives the details of sample allocation

The selection of women involves three stages;

1st Stage: Selection of Rural kebeles

First the kebeles were stratified according to the number of years of HEP implementation. The list of kebeles having information on when they started HEP implementation was obtained from Adama Woreda Health Bureau. Based on this list of kebeles, two kebeles were selected from each stratum and a total of four kebeles were considered in this study.

2nd Stage: Selection of Enumeration Areas (EA) / Local zones

The number of zones in each kebele ranges from 2 to 4 and two zones/enumeration areas[1] were selected from each kebeles randomly and a total of eight zones (EAs) were included. Listing of all households was undertaken in the selected zones.

3rd Stage: Selection of Women

The last stage sampling units - women who had given live birth in the five years preceding the survey and/or pregnant at the time of the survey were selected from a sampling frame (Listing form) prepared in each zones/EAs. The allocation of the predetermined sample of women was using the probability proportional to size. The allocated sample of women selected from each zone using systematic random sampling method.

To undertake focus group discussion, two kebeles were selected randomly from the four selected study kebeles (one from each stratum) and collect information using focus group discussion guide.

[1] Not the Central Statistical Agency's delineation of EA's. For this study, small clusters called zone having 5-8 gottes/Geres referred as enumeration area (EA)

3.5.2. Sample Size Determination

In order to determine the size of the sample considered in this study, the proportion of rural women who attended ANC service in the population of the countries rural community was considered for computing the maximum possible size. The 2005 Ethiopian Demographic and Health Survey estimated the proportion of women who utilized Antenatal care during their most recent pregnancy to be 23.7 percent which is approximately 24% (CSA and ORC Macro, 2006)

And the error to be tolerated in this study is taken to be 0.05, fixing the level of confidence interval at 95%; the sample size (n) is determined by the following formula

$n = pq\left(\frac{Z_{\alpha/2}}{E}\right)^2$ Where, E=0.05, α=0.05 and Z = 1.96

P= 0.24 and we can calculate q as q=(1-p); q=0.76

$n = (0.24)(0.76)\left(\frac{1.96}{0.05}\right)^2 = 280.28$

Since, the sampling employed for this study was multi stage sampling; the sample size was adjusted by raising it by a factor of 2, to account for the variation for not using simple random sampling. The final sample size adjusted for design effect and non response error, 5% is computed as:

i.e. (280.28x5%) = 14

(280 + 14) x 2 = 588

Therefore, the minimum sample size used for the study as a whole was 588 women – 294 in each stratum. The method for allocation of sample size in each zone/enumeration area was probability proportional to size allocation. Sample size of each zone/EA was calculated as:

$n_{h(kz)} = n_h \frac{N_{(hkz)}}{N_h}$, where, *h(stratum)* = 1 and 2; *k* (kebele)= 1 and 2; and *z (EA)*= 1 and 2

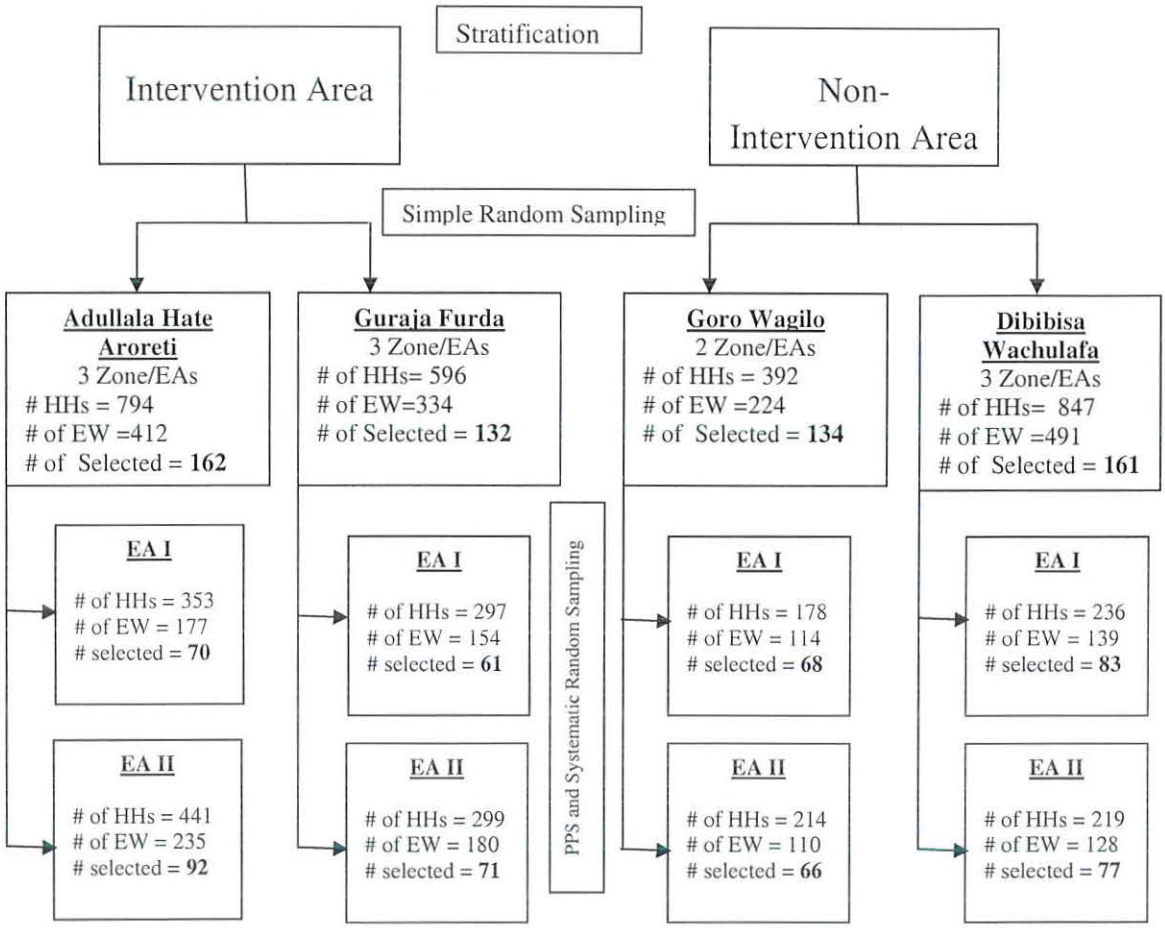
Where - n_h is sample size for stratum *h* (predetermined - 294), i.e., for n_h, *h=1 and 2:*

$n_1 = 294$ and $n_2 = 294$.

N_h is population – the total number of eligible women - in stratum *h*

N_{hkz} is total population in stratum *h,* kebele *k* and in a particular EA *z*:

Figure 3.1: Schematic Presentation of Sampling Procedure, Rural Adama, March 2010



EA – Enumeration Area, EW – Eligible Women and HH – Household

3.6. Data Analysis

Quantitative Data: During data collection, data quality checking was made on spot and the data was entered to the computer after manual editing and coding is completed. CSpro 4.0 version was used to minimize errors that may be committed during data entry. In order to control for possible errors during data entry a number of validation controls were employed including programmed skip and range rules in CSpro. The software allows consistency checking, double entry and data verification which is useful to keep the quality at higher level. It also allows exporting data to SPSS for analysis.

For the analysis, SPSS version 15 was used. Univariate analysis was used to describe the respondents' socio-demographic characteristics by stratum and presented in tabular and graphic form. Bivariate analysis was used to examine the association of explanatory variables with the maternity service utilization.

At the multivariate analysis, since the dependent variables are dichotomous, two binary logistic regression models were fitted for ANC and professional assisted delivery (PAD) care. Logistic regression was applied to examine the relationship between service utilization and a set of predictor variables. The logistic regression model, the natural logarithm of odds ratio is expressed as a linear function of various independent variables.

$$\ln(p/1-p)= \beta_o+ \beta_1 x_{1i}+ \beta_2 x_{2x}+\ldots+ \beta_k x_{kx}$$

The corresponding multiplicative model for the odds is

$$(p/1-p) = \exp (\beta_o+ \beta_1 x_{1i}+ \beta_2 x_{2x}+\ldots+ \beta_k x_{kx})$$

β_i = regression coefficients (are partial coefficients, controlling for other variables in the model)

x_i = set of independent variables.

p= probability of a woman using ANC/PAD service

1-p= probability of a woman not to use.

Qualitative Data: In Qualitative Data analysis, familiarization of the FGDs data was achieved by reading the transcripts and the observational notes. The themes were identified in the responses to the key questions and categories were developed. Then quotes were sorted out, comparisons made and relations investigated. These data was indexed, mapped and interpreted.

CHAPTER FOUR

FINDINGS OF THE STUDY

A total of 582 women, who had at least one live birth in the last five years prior to the study were interviewed using structured questionnaire. The response rate was computed and the quality of age data was assessed prior to the analysis. This chapter presents the socio-demographic background characteristics, knowledge and attitude and practice of maternity service of the respondents. The result is presented by over all study kebeles and by each stratum as well. In the bivariate analysis, the association of independent variables with the two dependent variables (ANC and professional assisted delivery care use) was assessed separately. And finally, since one of the objectives of the study is to identify the factors affecting maternity services utilization, multivariate analysis was carried out for both dependent variables.

4.1. Response Rate

Most surveys are exposed to complete non-response due to unwillingness of respondents or absence during the survey and partial non-response due to failure to respond to one or more of the questions. As a result, it is common to use less number of completed interviews than the predetermined sample for analysis. For this study 588 women - 294 from the intervention kebeles and 294 from Non-Intervention kebeles - were selected to provide information on their knowledge, attitude and practice on maternity services. Of the predetermined sample, 582 women – 292 women from intervention and 290 women from the non-intervention group- were successfully interviewed and the response rate was 99 percent. During data collection two women were not available during subsequent visit for interview and data from four women was found to be incomplete and were excluded from the analysis.

4.2. Quality of Age Data

In most developing countries, population based census and surveys are exposed to age misreporting. This is mainly due to the high illiteracy, which limits individuals' awareness

and capacity to record their children's and their own age. Moreover, the lack of complete and sound vital registration system has a negative impact on the quality of age data. As Ethiopia is not an exception, obtaining reliable age information in surveys and censuses is challenging, even more due to the non existence of vital registration.

There are various techniques developed to measure the extent of age misreporting (age heaping and shifting). The most commonly used index used to measure age heaping is Whipple's Index. United Nation published the scale for the quality of the data as: Highly accurate for whippele's index value under 105, Fairly accurate for value between 105 and 109.9, Approximate for value 110 – 124.9, rough between 125 and 174.9 and very rough quality for value 175 and above. To compute the value of whipple's index the following formula was used to measure heaping on age ending with multiples of five.

$$WI = \frac{(p_{20} + p_{25} + ... + p_{45} + p_{50})}{\frac{1}{5}(p_{16} + p_{17} + p_{18} + ... + p_{48} + p_{49} + p_{50})} \times 100$$

$$WI = \frac{(50+41+...+5+2)}{\frac{1}{5}(582)} \times 100$$

$$= 157.2$$

The magnitude of the error occurred in the single age data in view of the whipple's index is that the data is rough. That means, the data is affected by age misreporting (see Figure 4.1), so it is not recommended to use a single year age data for demographic analysis. To minimize the effect of the error it is preferable to combine the single year age into groups as this approach eliminates the irregularities within these groups. The most common form of grouping is a five years age group which is less sensitive to age heaping. As it is illustrated on Figure 4.2, the plot of the five years grouping is smoother than the plot of the age distribution by single years.

Figure 4.1: Percent Distribution of Women by Single Years of Age, Rural Adama, March 2010.

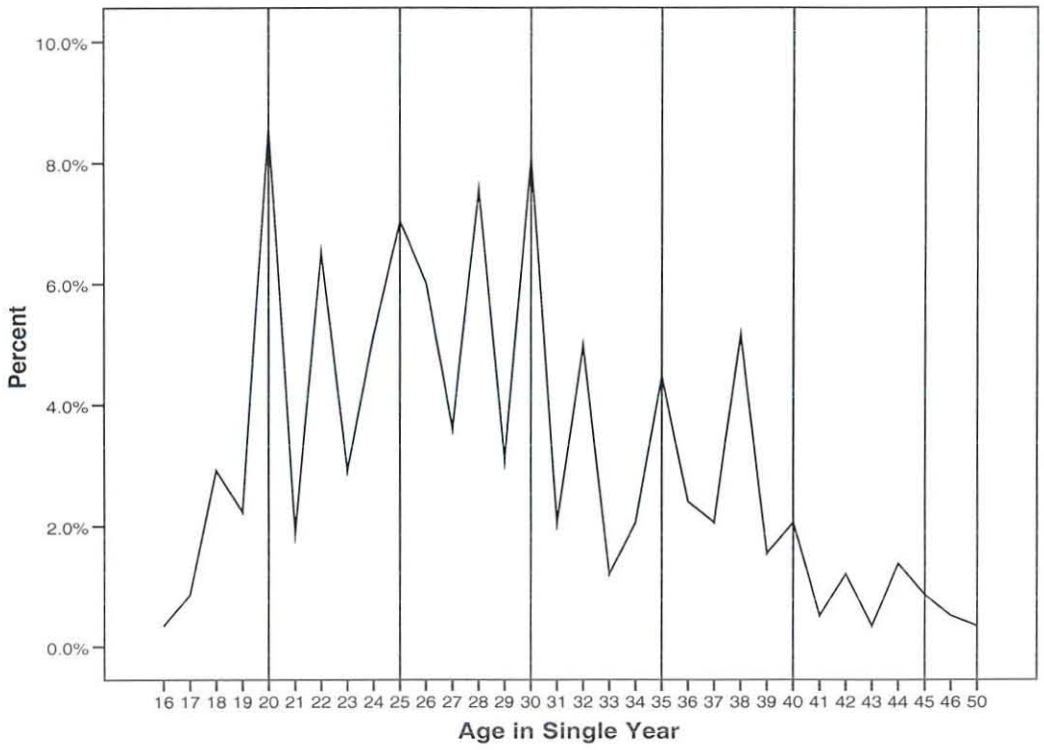
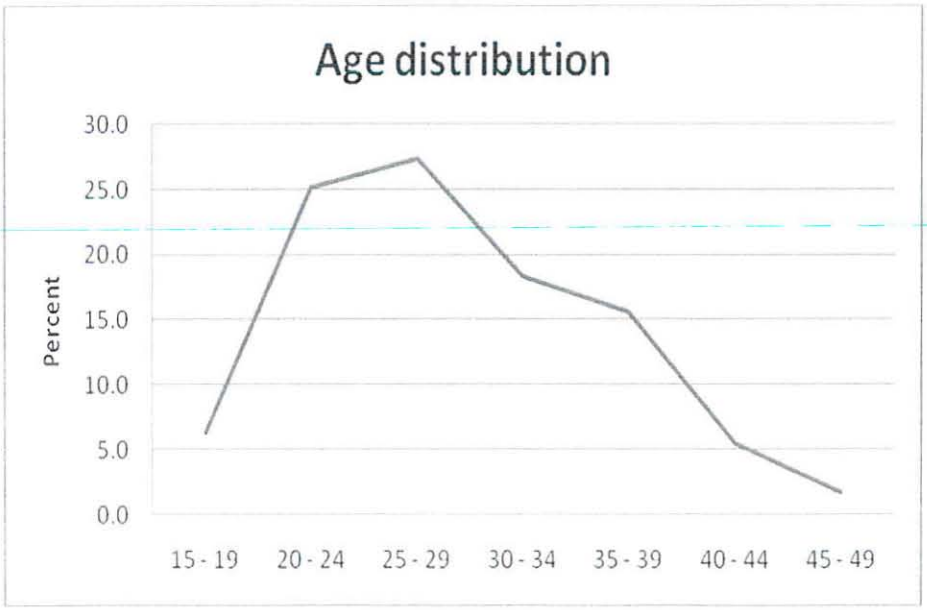


Figure 4.2: Percent Distribution of Women by Five-years Age Group, Rural Adama, March 2010

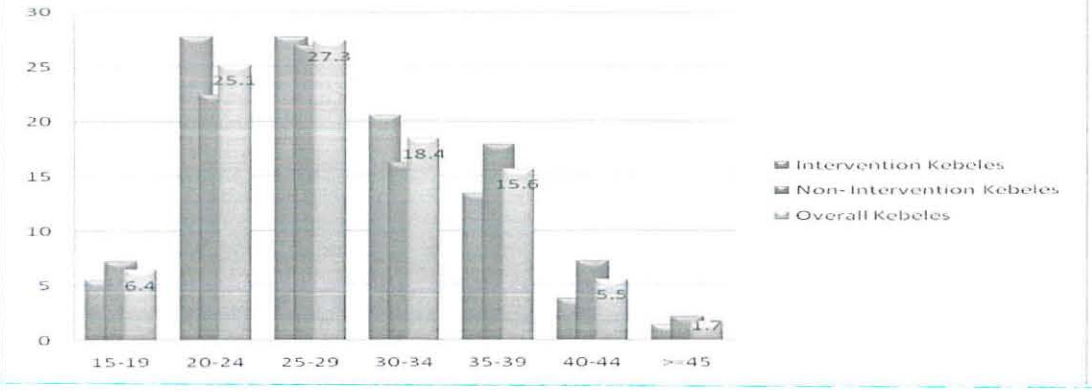


4.3. Socio- Demographic Characteristics of Respondents

In this study, as indicated earlier, a sample of 582 women who had given a live birth in the last five years before the survey and/or pregnant during the survey- were included. Half of the respondents reside in the health extension program intervention kebeles where program has been implemented for four and more than four years and the other half from non-intervention kebeles. The detailed socio demographic characteristics of respondents included in the study is presented using tables and charts.

Current Age – All women were asked to report their age in complete years at the time of the study. The minimum current age reported was 16 years and maximum 50 years. Overall, the mean current age was 28.52 years; in intervention and non-intervention kebeles was age 28.07 and 28.98 years, respectively. As it is shown on the Figure 4.3, majority (52.4%) of the respondents were aged between 20 and 29 years (55.4% in intervention kebeles and 59.3% in non-intervention kebeles). Women aged 40 years and older were 7 % of the respondents, women age under 20 constitute 6.4% of the total. The percent distribution in each age group was more or less similar in the two areas; majority of respondents were in twenties.

Figure 4.3: Current Age of Women by Study Area Category and Overall, Rural Adama, March 2010



Maternal Age – Women's age at the time of their last live birth also asked. Pregnant women who had no previous live birth were included in the study to provide information on their knowledge and attitude and their ANC practice. Overall, 1.2% of respondents were pregnant at the time of the survey and had no live birth in the reference period – their current age is recorded as maternal age.

Minimum maternal age reported was 15 years and maximum 48 years of age. Overall, 43.5% were aged less than 25, 41.9% were aged 25-34, and the remaining 14.6% were aged 35 and

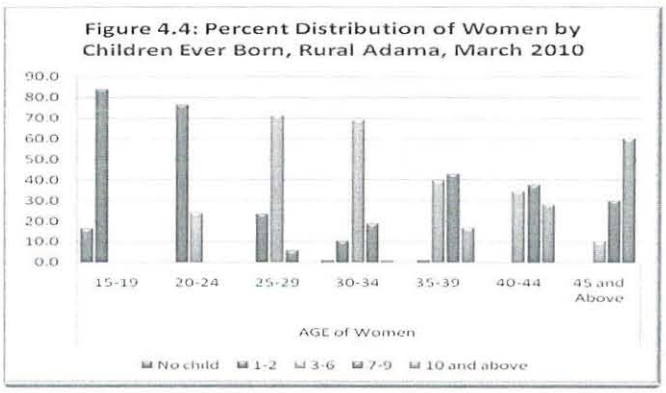
above. As it is indicated in Table 4.1, the mean age at last birth in the intervention and non-intervention areas were age 26.03 years and 26.93 years, respectively. The overall mean age was 26.39 years with standard deviation of 6.645 years.

Marital Status – Marital status was one of the main characteristics in the study. More than 88% of women were currently married or cohabitated and around 11% of women were widowed or separated or divorced.

Age at First Marriage – Women who were ever married at the time of the study were asked to report their age at first marriage. Marriage practice is very early in the study areas; as eight women in ten were married early before age 18 years and only two in ten women were married at age 18 and above years. The minimum age at first marriage was 14 years and maximum 28 years. The mean age at first marriage was 16.14 years.

Children Ever Born - Respondents' fertility experience is also detailed in Table 4.1. The mean number of children ever born (CEB) among all respondents was 4.26 children. In intervention kebeles and non-intervention kebeles respondents in all age groups reported a mean of 4.25 and 4.39 CEB, respectively. The percent distribution of number of children ever born in the two groups was almost comparable in all categories.

The distribution of women aged 40-49 by number of CEB is of particular interest since these women approached completion of their childbearing years. The distribution of CEB in this cohort, therefore, approximates completed parity (see Figure 4.4). Accordingly, women from intervention and non-intervention areas reported average number of children ever born 8.8 and 8.26 children, respectively, an indication of high fertility in rural Adama area. As it is indicated in the table, overall, mean number of children ever born in this particular cohort was 8.45 children.



Birth Interval – birth interval in this case is the length of time (in months) between last livebirth and the preceeding birth. Women having two and more live births were asked to report the birth interval. The minimum number of months reported was 11 months and maximum 96 months. The mean number of months was 30.8 and median 28 months. Women in all the study kebeles, 43.5% reported less than two years, i.e., 11-24 months. 41.2% of women had their last live birth between two to three years (within 25-36 months) interval from the preceding birth. About 15% were reported more than 36 months of birth interval.

Table 4.1: Percent Distribution of Women by Selected Demographic Characteristics, Rural Adama, March 2010

Background Characteristics		Study Group Category		Total (n=582)
		Intervention (n=292)	Non-Intervention (n=290)	
Maternal Age	**< 25**	44.7	42.4	253(43.5%)
	25-34	43.2	40.7	244(41.9%)
	> = 35	12.3	16.9	85(14.6%)
	Mean ± SD	26.03±6.3	26.93±6.89	26.48±6.6
Marital Status				
	Married/Living Together	87.7	89.7	516(88.7%)
	Widowed/Divorced/Separated	12.3	10.3	66(11.3%)
Age at First Marriage	**< 15**	18.6	15.6	99(17.1%)
	15-17	58.4	66.4	362(62.4%)
	> =18	23	18	119(20.5%)
	Mean ± SD	16.9 ± 2.28	16.09± 2.03	16.14± 2.16
Children Ever Born (All Women)				
	0-3	46.9	44.5	266(45.7%)
	4--7	41.8	38.6	234(40.2%)
	8 and Above	11.3	16.9	82(14.1%)
	Mean ± SD	4.25± 2.789	4.39± 2.817	4.26± 2.77
CEB (Women Age 40-49) Mean± SD		8.8± 2.859	8.26 ±2.521	8.45±2.624
Birth Interval	11-24 Months	48.3	39	210 (43.5%)
	25-36 Months	37.6	44.6	199 (41.2%)
	37-59 Months	7.3	13.7	51 (10.6%)
	>= 60 Months	6.8	2.8	23 (4.8%)

Religion – Table 4.2 illustrated social characteristics of women in the study. Overall, the majority, 81.3%, of respondents were Orthodox Christians: 90.8% in intervention and 71.7% in the non-intervention kebeles. Protestants were 9.2 % and 25.9% in intervention and non-intervention areas, respectively. The remaining respondents were affiliated to traditional (0.7%), followed by Muslim (0.3%), and Catholic (0.2%).

Literacy and Educational Status of Women – information on respondents' literacy status and educational level were obtained by asking the respondents whether they are able to read and write, if the response was affirmative, had ever attended school and, the highest grade they have completed were registered. Majority, 85.2% of respondents were unable to read and write and never attend school at all. Only 11.9% attend primary school and completed one of the grades 1 up to 6. Around 2.9 percent of respondents have post primary education.

Table 4.2 Percent Distribution of Women by Selected Social Characteristics, Rural Adama, March 2010

Background Characteristics		Study Group Category		
		Intervention	Non-Intervention	Total (n=582)
Religion	Orthodox	90.8	71.7	473(81.3%)
	Catholic	0	0.3	1(0.2%)
	Protestant	9.2	25.9	102(17.5%)
	Muslim	0	0.7	2(0.3%)
	Traditional	0	1.4	4(0.7%)
Women Education	Illiterate	77.7	92.8	496(85.2%)
	Primary	16.8	6.9	69(11.9%)
	Post primary	5.5	0.3	17(2.9%)
Husband's Education				
	Illiterate	47.8	52.9	292(50.3%)
	Primary	41.2	34.6	220(37.9%)
	Post primary	10.3	3.5	40(6.9%)
	Do not know	0.7	9	28(4.8%)
Years of Residence	< =5 Yrs	14.4	16.9	91(15.6%)
	6-15 Years	26.4	23.8	146(25.1%)
	> 15 Years	17.1	20.7	110(18.9%)
	From Birth/Childhood	42.1	38.6	235(40.4%)

Husband's/Partner's Education – Ever married women were asked to report on their husbands/partners literacy status and highest level of education. As it is illustrated in table 4.2 above 4.8% women had no information on their husbands level of education. Overall, 50.3% women reported that their husband cannot read and write. Of all women, 37.9% reported that they were married to husband with primary education and 6.9% with post primary.

Migration Status – overall, 40.4% of respondents lived in the study kebele from birth (childhood). As it is indicated in Table 4.2, 19 % of the respondents lived in the study kebele for more than 15 years but not from childhood. A quarter of all respondents lived for years between 6 and 15 years in the study kebele.

4.4. Knowledge, Attitude and Practice of Maternity Services

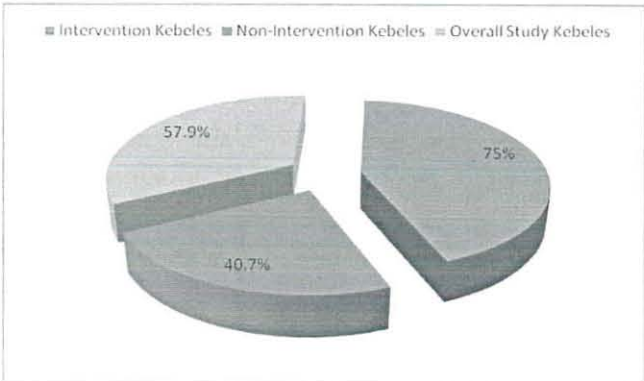
4.4.1. Knowledge on Health Service Extension Program

The awareness of women on the health service extension program intervention and the service provided by the health providers were assessed. As it is shown in Figure 4.5, 75% of women in intervention area reported that they heard of health extension program and the services the health extension workers providing. One of the kebeles selected to represent intervention kebeles, covered broader area and most of the women at the periphery of the kebele reported that, they do not know the program or HEWs. The findings of focus group discussions also confirmed this:

> *"The health post is constructed at one part of this very wide kebele, which only benefited the community settled around and not far from the post. The health extension workers reported for the higher officials that it is beyond their capacity to travel from one end to the other to provide service. May be the woreda has to split the kebele or add other health workers selected from the community for the people on the other end."*

From women in non-intervention area 40.7% of women reported that they had information on the services provided by health extension workers.

Figure 4.5: Proportion of women in Intervention, Non-Intervention and overall kebeles who have knowledge on the availability of Health Extension Program, Rural Adama, March 2010



4.4.2. Knowledge and Attitude of Respondents

Different researches indicated that knowledge and attitude of women and their partners towards maternity service are factors that affect use. In this study, the knowledge of women was assessed through their awareness on the danger signs from pregnancy to postpartum period. For women who explained the signs, the sources of information were asked. The percent of women who were aware of the danger signs in pregnancy, delivery and postpartum and the source of information is presented in this section. In addition, attitude of women towards the importance of maternity service and their preference of providers were assessed.

Awareness of Danger Signs

By making maternity service available and related information accessible to individuals and couples, it has been argued that community level programs may increase overall knowledge, and demand for the service. This study captured information on respondents' knowledge on the danger signs that could occur to woman during pregnancy, childbirth and postpartum period. To refer respondents have knowledge of danger signs, they were asked to mention at least two of the signs. In addition to their awareness on the complications, respondents' who were aware of danger signs were asked the source of information – women were prompted to mention all sources and only one most relevant (from health providers) source was recorded.
The knowledge of danger signs during pregnancy in the two groups was comparative. Overall, 77.8 % of women were aware; 80.8 % in intervention kebeles and 74.8% in non-intervention kebeles. The proportion of women who mentioned at least two danger signs

during delivery and postpartum period was higher in non-intervention area than the intervention kebeles. Around, 87% and 98% of women in intervention and non-intervention kebeles, respectively, were aware of the danger signs during labor and child birth. 54% and 87% of women in intervention and non-intervention areas, respectively, reported at least two sign of complication during postpartum period.

Table 4.3: Knowledge Women on Maternity Service Source of Information on the Danger Signs, Rural Adama, March 2010

		Study Areas		Total
Variable		**Intervention**	**Non-Intervention**	**(n= 582)**
Knowledge of Danger Signs During				
Pregnancy	Yes	236(80.8%)	217(74.8%)	453(77.8%)
	No	56(19.2%)	73(25.2%)	129(22.2%)
Labor & Childbirth	Yes	253(86.6%)	284(97.9%)	537(92.3%)
	No	39(13.4%)	6(2.1%)	45(7.7%)
Postpartum	Yes	157(53.8%)	249(85.9%)	406(69.8%)
	No	135(46.2%)	41(14.1%)	176(30.2%)
Sources of Information				
Pregnancy	Hospitals/Health Centers	133(56.4%)	53(24.4%)	186(41.1%)
	Health Post/HEWs	75(31.8%)	15(6.9%)	90(19.9%)
	TTBAs	4(1.7%)	1(0.5%)	5(1.1%)
	UTBA/CHA/Trad.Healers	6(2.5%)	2(0.9%)	8(1.8%)
	Friends/Relatives	11(4.7%)	146(67.3%)	157(34.7%)
	Radio/TV	7(3.0%)	0(.0%)	7(1.5%)
Childbirth	Hospitals/Health Centers	176(69.6%)	56(19.7%)	232(43.2%)
	Health Post/HEWs	50(19.8%)	13(4.6%)	63(11.7%)
	TTBAs	2(0.8%)	15(5.3%)	17(3.2%)
	UTBA/CHA/Tradi.Healers	7(2.8%)	22(7.7%)	29(5.4%)
	Friends/Relatives	12(4.7%)	177(62.3%)	189(35.2%)
	Radio/TV	6(2.4%)	1(0.4%)	7(1.3%)
Postpartum	Hospitals/Health Centers	104(66.2%)	49(19.7%)	153(37.7%)
	Health Post/HEWs	41(26.1%)	10(4.0%)	51(12.6%)
	TTBAs	0(0.0%)	4(1.6%)	4(1.0%)
	UTBA/CHA/Tradi.Healers	2(1.3%)	6(2.4%)	8(2.0%)
	Friends/Relatives	6(3.8%)	178(71.5%)	184(45.3%)
	Radio/TV	4(2.5%)	2(0.8%)	6(1.5%)

As it is known the danger signs in the three phases – during pregnancy, childbirth and postpartum period- have common characteristics, most women may not recall the signs of complication in the different phases.

The focus group discussion, participants were able to mention some of them. However, when they were asked about the major source of information "friends/families" were mentioned as main source. They also explained about the better influence of information from health care providers in seeking health care.

> *"We were told by our friends and relatives that all the pains, fevers, vomiting, bleedings are normal conditions and they experienced. So there is no need to go to health facilities and it was considered as a disgrace for the husband too"* And they added *"the information you got from other people may not encourage to go for treatment but talking with health provider is more powerful to initiate women to seek care.*

As it is indicated in Table 4.3, the majority of women who mentioned the danger signs in non-intervention areas got the information from their friends/ relatives, whereas women in intervention area mentioned health care providers as sources of information.

Attitude on Service Utilization:

Women were asked about their attitude towards the importance of maternity service and their preference of health care provider during childbirth. As it is illustrated in Table 4.4 overall, 96.7%; 98.6% in intervention and 94.8% of women in non-intervention areas believed that women need professional health care during pregnancy. The proportion of women who believed on the importance of seeking care from professionals during labor and childbirth was 69.9% and 63.1% in intervention and non-intervention areas, respectively.

Around 8% (15.1% in intervention and 0.7% in non-intervention kebeles) of women in the study preferred health extension workers (HEWs), 25.6 % others (TTBA, UTBAs, etc...). Regarding professional health care within six weeks after childbirth, only 51.4% of all respondents reported the importance of postpartum check up. Majority of women in intervention kebeles reported the insignificance of postpartum check up on their health outcome. The FGD participants explained:

"Once we give birth and feel healthy we may not need to go to facilities for check up" and also added *"let alone after delivery, most of us prefer to give birth at home if things are favourable like in the other kebeles; that is, having trained people in our area to assist childbirth"*

Table 4.4: Attitude of Women on the Importance of Maternity Service, Rural Adama, March 2010

		Study Area		
Variables		**Intervention**	**Non-Intervention**	Total
Importance of Professional health care during Pregnancy	YES	288(98.6%)	275(94.8%)	563(96.7%)
	NO	4(1.4%)	15(5.2%)	19(3.3%)
Attitude of women on who should attend delivery	SBAs[2]	204(69.9%)	183(63.1%)	387(66.5%)
	HEWs	44(15.1%)	2(0.7%)	46(7.9%)
	Others	44(15.1%)	105(36.2%)	149(25.6%)
Does a woman need to have a check up after delivery	YES	82(28.1%)	217(74.8%)	299(51.4%)
	NO	210(71.9%)	73(25.2%)	283(48.6%)

4.4.3. Maternity Service Utilization Practice

To assess the contribution of HEP in improving maternity service utilization, service provided by HEWs also considered as professional care for this study. That is, all users of antenatal, professional assisted delivery (PAD) and postnatal care have received the service from doctors/nurses or/and health extension workers. Proportion of women who received PAD care and attended at least one antenatal care service is presented on Table 4.5. Overall, the proportion of women who received ANC was found to be **51.9%** with higher proportion in intervention kebeles (75%). In the non-intervention kebeles 28.6% of women received ANC during their last live birth. ANC attendant women were asked to report their reason for ANC visit initiation; 39.9% were initiated by the health problem they had during their pregnancy and 60.1% started the first ANC visit initiated by their awareness on the importance of health care service. Women, who were unable to attend ANC during the last

[2] A skilled attendant is: an accredited health professional – midwife, doctor or nurse – who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postpartum period and in the identification, management and referral of complications in women and newborns (Herschderfer, 2004)

pregnancy, were asked their reason of non attendance; and 25% responded that they had no knowledge about the importance of the service for health of women. Being in state of healthy condition was reported by 60 % of non attendant women as a reason. In all the study kebeles, the proportion of professional assisted deliveries (PAD) was 7.9%; 12.3% in intervention kebeles and 3.4% in non-intervention kebeles.

Postnatal care is the other important service required to improve the outcome of pregnancy. In the study, women were asked whether they received postnatal check-up from trained providers, i.e.. nurses, doctors and health extension workers. Table 4.4 indicated, overall, only 10.4% of women, 17.2 % in intervention kebeles and 3.5 in Non-Intervention kebeles received postnatal check up within six weeks after birth. The service was provided by Doctors/Nurses (65%) and health extension workers for 35% of women, respectively.

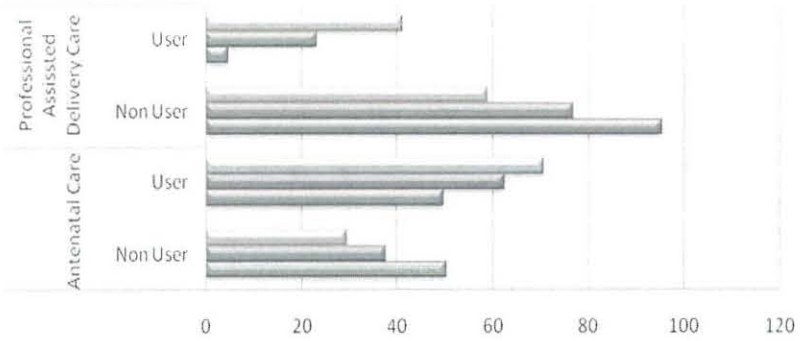
Table 4.5: Maternity Service Utilization by study area, Rural Adama, March 2010

Variables		Study Area		Total	
		Intervention	Non-Intervention		
		%	%	#	%
ANC	Attendant	75	28.6	302	51.9
	Non attendant	25	71.4	280	48.1
PAD	Yes	12.3	3.4	46	7.9
	No	87.7	96.6	536	92.1
Reason for ANC Initiation	Health Problem	35.2	51.8	120	39.7
	Regular Checkup	64.8	48.2	182	60.3
Institution for ANC service	Health Post	42.5	13.3	104	34.4
	Hospital/HCs	53	84.3	186	61.6
	Private clinic	4.6	2.4	12	4
Reason for not attending ANC	No knowledge about ANC	26	25	70	25
	Being in state of good health	62	59	168	60
	Far from home	1	8	17	6
	Religious reasons	7	1	7	3
	Other reasons	4	7	18	6
Postnatal checkup	Yes	17.2	3.5	60	10.4
	No	82.8	96.5	515	89.6
PNC Provider	Doctors/Nurses	62	90	40	65
	HEWs	38	10	20	35

4.5. Women Education and Maternity Service Utilization

As it is indicated in different literatures, women education has enormous influence on their maternity health service care seeking behavior (Belay, 1997; Abyot, 2008 and Gurmessa, 2009). Among women with primary and post primary education 62.3% and 70.6% were ANC attendant, respectively. Nearly fifteen percent of illiterate women considered in this study were ANC attendant. With regard to professional attended delivery care use, among women with post primary education 41.2% were PAD users and only 4.6% of illiterate women received professional care during their last live birth. Within women with primary education, 23.2% were PAD users whereas very low proportion of illiterate women received PAD care service (4.6%). As it is shown in Figure 4.6, as level of women education increased the probability of maternity service utilization also increased.

Figure 4.6: Percent of Women by Maternity Service Use and Level of Education, Rural Adama, March 2010



	Antenatal Care		Professional Assissted Delivery Care	
	Non User	User	Non User	User
Post Primary	29.4	70.6	58.8	41.2
Primary	37.7	62.3	76.8	23.2
Illiterate	50.2	49.8	95.4	4.6

4.6. Service by Health Post/Health Extension Workers

4.6.1. Reason for Not Visiting Health Post for ANC

As it is indicated in the above table, among the ANC attendants 34.4% received the service from health post/health extension workers. Women who received ANC service from institutions other than health post were asked why they failed to prefer health posts for ANC.

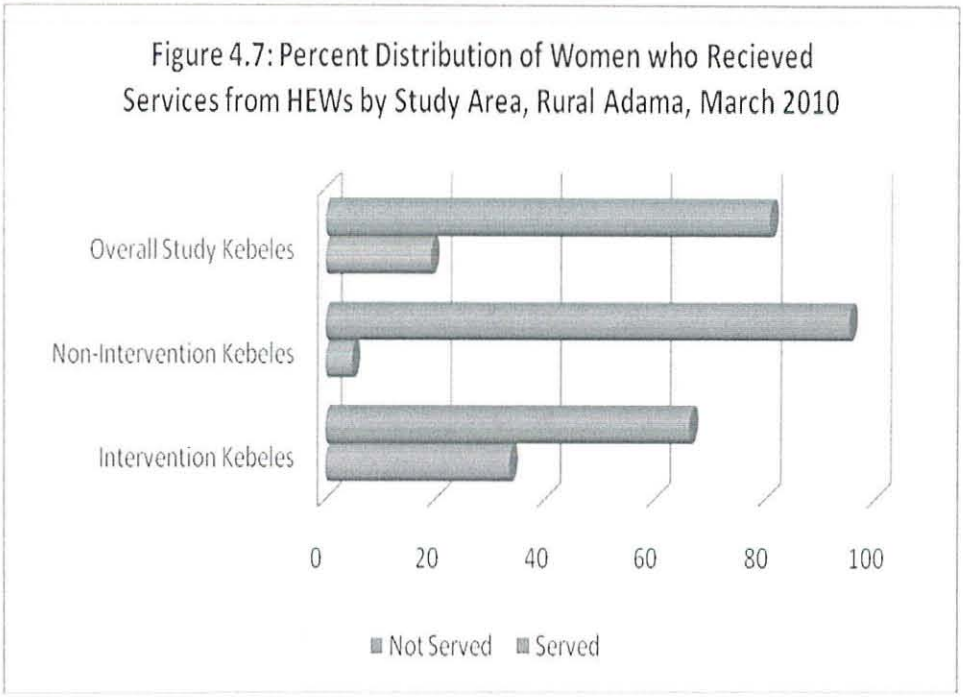
As it is shown in Table 4.6, the majority (83.3%), of women in non-intervention kebeles responded that; as expected, there was no HEP at the time and 15.3% mentioned poor quality as a reason. Women in intervention kebeles reported poor quality (38.9%) and no HEP at the time (35.7%) as a reason. In all the study kebeles, more than half of women responded no HEP when they were pregnant with their last live birth.

Table 4.6: Women's reason for not Using Health Post for ANC, Rural Adama, March 2010

Variables	Intervention		Non-Intervention		Total	
Reasons	#	%	#	%	#	%
No information on availability ANC	22	17.5	0	0	22	11.1
Too far from my Village	2	1.6	0	0	2	1
Fear on the skill of HEWs	8	6.4	1	1.4	9	4.5
Poor quality Service	49	38.9	11	15.3	60	30.3
No HEP at the time	45	35.7	60	83.3	105	53

4.6.2. Perceived Quality of Care Provided by HEW:

The two kebeles in the Non-Intervention area started implementing HEP five to seven months before data collection; whereas, the intervention area started implementation four years ago. As it is presented on Figure 4.5 above, about 58% of women included in the study reported they have the knowledge of the availability of the program. All women who responded affirmative on their knowledge of availability were also asked whether they had ever received any maternity service and/or family planning service from the health post/health extension workers during the last five years preceding the study. Figure 4.7 indicated, 33.6% of women in intervention kebele were served by HEWs and only 4.8% of women in non-intervention kebeles. In all the study kebeles 19.2% of women were visited health post or visited by health extension workers for any of the services.



Information on women's perception on the quality of the service provided by health extension workers is one of the interests of the study. As it is discussed in the previous section, in all the study kebeles 19.2 percent of women received service from health extension workers during the reference period. All women who received service were asked whether they were satisfied by the quality of services or not.

The level of satisfaction was measured based on the scores the women have given to the quality indicators. These indicators were; provider's respect, the length of time spent with the HEWs, availability of medical supplies and counseling skill of the HEWs. Waiting time was also considered during data collection, however; it was challenging for some women to score the waiting time; since for some services it was the HEW who visited them at home. The information on waiting time was excluded from the analysis, since it lacked completeness and comparability.

All women who were served scored the service for each indicator out of ten and the result is presented in Table 4.7, zero and one means 'very dissatisfied', 2-3 means 'dissatisfied', 4-6 'fair', 7-8 means 'satisfied' and 9 and 10 means that the service they received was 'very satisfactory'.

Treating a woman with respect includes (but is not limited to) greeting her in a friendly manner and/or addressing her by her name. The provider may also show

respect by maintaining eye contact. Regardless of the form it takes, it is important that the woman feels like she was treated well by the HEWs, so that she may be more likely to continue to seek services at the health post. Interviewers clarified the questions by pointing out the above-mentioned dimensions of providers respect and asked women to score; 39.3% of respondents responded 'fair' and 37.5% of respondents 'satisfied'.

Since the length of time required for different services varies, women were asked to score whether the time spent with HEWs was sufficient to ask and receive information. More than 43.8% of women responded the length of time spent with HEWs was 'fair'. Of the respondents 33.9% of scored for 'satisfied' and 14.3% 'dissatisfied'.

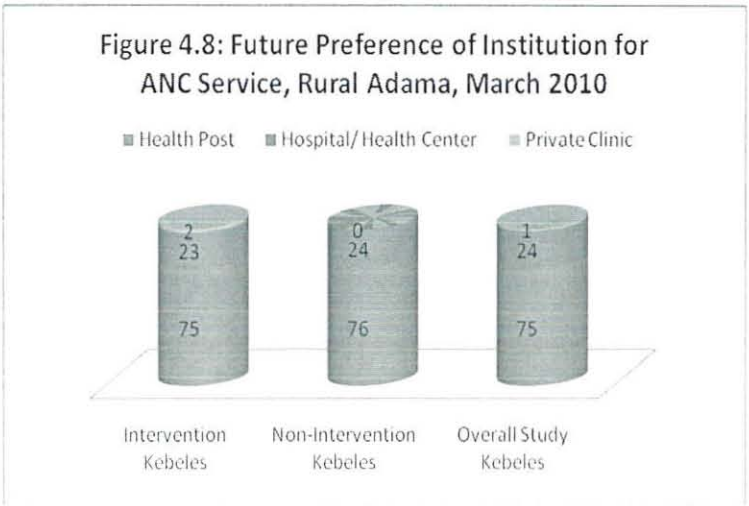
Availability and adequacy of medical supplies was also assessed by the level of knowledge that the women have; and 40.2% and 37.5% of women responded 'satisfied' and 'fair', respectively.

An important aspect of delivering quality services is the demonstration of good counseling skills by the provider. Specific behaviors that improve communication and/or make the women feel comfortable includes; asking open-ended questions, encouraging women to ask questions, treating her with respect, discussing a return visit for FP, ANC and PNC and others. All these were mentioned for women to score their counseling skill; 42.9% women were satisfied by the HEWs' counseling skill, 40.2% responded 'fair' and 10.7% of women reported 'dissatisfied' by the counseling service provided.

And finally, women were asked to give score for the overall performance of the service provided by the HEWs. More than fifty percent of women responded 'fair', 21.4% reported 'satisfied', 12.5 'very satisfied' and 8% and 4.5% 'dissatisfied' and 'very dissatisfied', respectively. The FGD result revealed that, the availability of the service in their locality is a huge transform for the women to use maternity service.

4.6.3. Future Intension to Use Health Post for ANC

ANC attendant women were asked about their future intension in using ANC service from professionals, all responded affirmative. Only attendant women were asked to report their future preference of institution for ANC service. As it is illustrated in Figure 4.8, three fourth of women preferred to visit their nearby health post for antenatal care service. The remaining one fourth of women preferred hospitals, health centres and private clinics.



4.7. BIVARIATE ANALYSIS

There are different methods for assessing association between two variables. Chi -square test is one way for examining bivariate relationships. It can measure the statistical significance of the association between two categorical variables. Since for this study, all the variables were categorized, it is found that Chi-square test is suitable for the examination of the bivariate relationship between the dependent and independent variables. Bivariate result tables are presented for each dependent variable – ANC use and professional assisted delivery (PAD) service use separately in the Table 4.8 and Table 4.9, respectively.

4.7.1. Factors Associated with Antenatal Care Service Use

Referring Table 4.8, chi-square result shows the status of relationship between the dependent variables and proximate variables. SPSS reports different measures of *p*, however it is best to use Pearson chi-square test result to see the status of relationship.

Socio-demographic characteristics of women included in this analysis were; maternal age, children ever born, birth interval, age at first marriage, marital status, religion, women education and husband's educational level. Of these, maternal age, marital status, religion and husbands and women education were found to be significantly associated with ANC attendance.

Mother's aged 35 years and above observed to have lower proportion (10.9%) of ANC attendant while those women aged less than 25 and 25-34 years were 43.4% and 45.7%, respectively ($\chi^2 = 7.944$, $p<0.05$). Of women age less than 25, nearly 52% received antenatal care. From all women in age group 25-34 years, 56.6% and among women in age group 35 years and above, 38.8% received at least one ANC service. Marital status has a strong association with ANC use. Nearly 56% of currently married women and 34.6% of widowed/separated/divorced women were ANC attendant. From the ANC attendant women, 87.7% were currently married and the remaining 12.3% were currently not married ($\chi^2 = 15.737$, $p<0.001$).

The highest proportion of ANC attendants were found to be Orthodox Christian followers (85.8%) and 13.9% were Protestants. Within Orthodox Christian Followers close to 55% were ANC attendants. From Protestants 41.2% were ANC attendants ANC and from other religion followers only 14.3% of women were attendants ($\chi^2 = 10.2$, $p<0.01$).

Women level of education has significant association with ANC service utilization. Higher proportion of ANC attendant women, 81.8% were illiterate ($\chi^2 = 6.256$, $p<0.05$). From all illiterate women 49.8% use ANC. Among women with primary and post primary education 62.3% and 70.6%, respectively, received at least one ANC service. With respect to husband's education, strong relationship between husband education and ANC use was observed. Within ANC users, 50% of women married to husband who cannot read and write (illiterate) or their educational status was not reported, 40.1% of women were married to husband with primary education and 9.9 % with post primary education. Three fourth of women who were married to husband with post primary education attended at least one ANC visit ($\chi^2 = 12.24$, $p<0.005$).

Table 4.8: Chi-square test result of association between ANC use and proximate variables, rural Adama, 2010					
Variables	**ANC from Professional**			χ^2 – Value	*p*-Value
	Number	**Percent**	**% within Category**		
Maternal Age					
< 25	131	43.4	51.8	7.944*	0.019
25-34	138	45.7	56.6		
>= 35	33	10.9	38.8		
Marital Status					
Currently Married	265	87.7	55.8	15.74****	0
Currently not Married[3]	37	12.3	34.6		
Age at First Marriage					
Less than 15	60	19.9	60.6	4.663	0.097
Aged 15-17 years	177	58.6	48.9		
Aged 18 and above	65	21.5	54.6		
Children Ever Born					
No or One Child	54	17.9	54.5	1.421	0.491
2-4 children	131	43.7	53.7		
5 and above children	117	38.7	49		
Birth Interval					
11-24 Months	106	42.7	50.5	7.558	0.056
25-36 Months	101	40.7	50.8		
37- 59 Months	23	9.3	45.1		
> = 60 Months	18	7.3	78.3		
Women Education					
Illiterate	247	81.8	49.8	6.256*	0.044
Primary	43	14.2	62.3		
Post Primary	12	4	70.6		
Husband's Education					
Illiterate	151	50	47.2	12.24***	0.002
Primary	121	40.1	55		
Post Primary	30	9.9	75		
Religion					
Orthodox	259	85.8	54.8	10.212**	0.006
Protestant	42	13.9	41.2		
Others	1	0.3	14.3		

3 Divorced/Widowed/Separated Women

Knowledge and Attitude

The chance of women who were aware of danger signs during pregnancy to use skilled birth attendant during childbirth was not significant as compared to women who were not aware. The chance of women, who agreed on the importance of professional health care during pregnancy, to use PAD care was unexpectedly, lower than women in the reference category.

Program Intervention

Again, health extension program intervention has shown its impact on the use of skilled birth attendant. Women in the health extension program intervention kebeles have 3 times higher chance of using professional attended delivery care than women in the reference category - non-intervention kebeles.

Table 4.11: Result of Logistic Regression on Professional Assisted Delivery Care use by Selected Explanatory Variables, Rural Adama, March 2010

Variables						95% C.I. for EXP(B)	
		B	Wald	Sig.	Exp(B)	Lower	Upper
Maternal age	Less than 25	-1.118	1.585	0.208	0.327	0.057	1.864
	25-34	0.278	0.188	0.665	1.32	0.376	4.64
	35 and above®		4.072	0.131			
Marital Status							
	Currently not married	-2.723	4.222	0.040*	0.066	0.005	0.882
	Currently Married®						
Birth interval	11-24 Months	-0.841	1.278	0.258	0.431	0.1	1.853
	25-36 Months	-1.336	2.963	0.085	0.263	0.057	1.203
	37-59 Months	-2.896	4.548	0.033*	0.055	0.004	0.791
	Above 60 Months®		5.893	0.117			
Children ever born							
	0-2 child/ren®						
	5 and above	-1.503	4.64	0.031*	0.222	0.057	0.873
Husband's education							
	Illiterate		17.35				
	Primary	0.945	3.368	0.066	2.572	0.938	7.052
	Post Primary	2.842	17.331	0.00***	17.145	4.499	65.335

2-4 children	11	23.9	4.5		
5 and above children	17	37	7.1		
Birth Interval					
11-24 Months	14	50	6.7	7.919*	0.048
25-36 Months	9	32.1	4.5		
37- 59 Months	1	3.6	2.0		
> = 60 Months	4	14.3	17.4		
Women Education					
Illiterate	23	50	4.6	55.27****	0
Primary	16	34.8	23.2		
Post Primary	7	15.2	41.2		
Husband's Education					
Illiterate	13	28.3	4.1	46.85****	0
Primary	19	41.3	8.6		
Post Primary	14	30.4	35.0		
Religion					
Orthodox	36	78.3	7.6	1.162	0.884
Protestant	10	21.7	9.8		
Others	0	0	0.0		
Health Provider Preference for delivery care					
SBA (Doctors/Nurses)	30	65.2	7.8	10.71***	0.005
HEWs	9	19.6	19.6		
Others	7	15.2	4.7		
Importance of Professional care during Pregnancy					
YES	42	91.3	7.5	4.665*	0.031
NO	4	8.7	21.1		
Knowledge of danger signs during pregnancy					
YES	42	91.3	9.3	5.25	0.22
NO	4	8.7	3.1		
Knowledge of Danger signs during labor and childbirth					
YES	46	100	8.6	4.186*	0.041
NO	0	0	0.0		
Study Group					
Intervention kebeles	36	78.3	12.3	15.76****	0
Non-intervention	10	21.7	3.4		

*Note: Significant at: *p<0.05, **p<0.01, ***p<0.005 and ****p<0.001*

4.8. MULTIVARIATE ANALYSIS: - DETERMINANTS OF MATERNITY SERVICE USE

The existence of association between the dependent variables and explanatory variables were assessed in the previous section using bivariate analysis. In the bivariate analysis technique the relationship obtained for one factor do not take in to account the other factors. When there are a number of explanatory variables of possible relevance, the effect of each term cannot be studied independently of the other. The effect of any given variable therefore depends on the other variables included in the analysis. To assess the relative importance of the selected predictors/explanatory variables in shaping the use of antenatal care and delivery services, the variables were entered into multivariate models using logistic regression. In each of the models one of the two maternity services under consideration were the dependent variable. The first model examines the relative effects of selected predictors on the use of antenatal care. The second model assessed the relative importance of the selected variables on soliciting professional assisted delivery care.

Multicollinearity Effect: Logistic regression requires no multicollinearity among the explanatory variables. To assess multicollinearity effect, multiple linear regression analysis and bivariate correlation analysis were used. In the multiple linear regression analysis, for all variables the value of Variance-Inflation Factor (VIF) were found to be less than 2.5 and the tolerance was more than 0.4; meaning that there is no multicollinearity effect. Bivariate correlation analysis was also used to assess the linear relationship between the explanatory variables. Variables with high correlation excluded from the logistic regression analysis.

Goodness of Fit Test: Hosmer and Lemeshow test is used to assess whether there is a significance difference between the predicted and actual models. The model fitted for ANC use was found to have a calculated chi- square value of 7.153 which is less than the table value. This indicated that we can accept the null hypothesis and conclude there is no statistically significance difference between the actual and predicated model or the model well fit the data. For the professional assisted delivery care use model, the calculated chi-square value was found to be 11.068 and concluded the model robustly fits the data.

Test of Significance: The next two tables were used to filter out the variables which have significant influence on the dependent variable. The Wald statistic tests the significance of

the coefficients of independent/explanatory variables. The Wald statistics is the squared ratio of the logistic coefficients to their standard error. It test whether βi=o, where βi's are coefficients of the independent variables. It also tests βo= o, where βo is the coefficient of the constant. If the Wald statistic is significant then the coefficients are significant in the model.

Standard errors are also used to construct confidence intervals for the Exp(b) coefficients, odds ratio. If the confidence interval contains 1, then it will be concluded that the change in the independent variables does not have effect on the dependent variable. It is the predicted change in odds for a unit increase in the independent variable. If the odds ratio is less than 1 corresponds to decrease, and odds ratio is more than 1 correspond to increase in odds. The significance of each category of the explanatory variables for the ANC use and professional assisted delivery care service use were explained one by one in the next sub-sections:

4.8.1. Factors Determining Antenatal Care Utilization

Table 4.10 illustrated the influence of explanatory variables on the ANC service utilization. Socio demographic, knowledge and attitude and program intervention factor for ANC service utilization is discussed in this section.

Socio-Demographic Determinants of ANC Utilization

Demographic factors; such as maternal age, marital status and birth interval, were found to be predictors of ANC utilization. The number of children ever born and education has no effect on the utilization of ANC service.

Maternal Age: the first category of women age at birth; 15-24 has no influence on ANC use when compared to the reference category. The odds of using antenatal care service among women with age at birth 25-34 was 1.948 times higher as compared to older women of age above 35 years, other variable held constant.

Marital Status: There is evidence to suggest that controlling for other variables; currently not married women were (46.7%) less likely to use antenatal care service than currently married women.

Birth Interval: Women with birth interval 11-24 months were found to be 75% less likely to receive ANC service than women with birth interval more than 60 months. Significant

difference was not observed between the two categories – with birth interval 25-36 months and 37-59 months- and the reference category.

Education: Unexpectedly, although different researches on maternal health care service utilization have indicated the influence of education on service utilization, this study indicated no statistically significant impact of husband's education on ANC use.

Knowledge and Attitude of Women

Knowledge on the dangers signs during pregnancy has significant influence on utilization of ANC service. The odds of ANC service use among women who has knowledge of danger signs during pregnancy is 4.642 times higher than women who have no knowledge. The Wald statistics test also confirmed the significant impact of knowledge of dander signs during pregnancy on ANC service use. Two variables which measure the attitude of women towards maternity care; attitude on importance of professional care during pregnancy and preference of health service provider during delivery, were not predictors of ANC service use.

Program Intervention

The impact of Health Service Extension program intervention on antenatal care service utilization also tested on this multivariate analysis. The likelihood of women in intervention kebeles to use antenatal care service was by far; 7.09 times, higher than women in the reference category- non intervention kebeles.

Table 4.10: Result of Logistic Regression on Antenatal Care Service Use by Selected Explanatory Variables, Rural Adama, March 2010

Variables	B	Wald	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
					Lower	Upper
Maternal age						
Less than 25	0.435	1.339	0.247	1.546	0.739	3.232
25-34	0.667	4.101	0.043*	1.948	1.022	3.713
35 and above®		4.236	0.120			
Marital status						

Currently not Married	-0.630	4.447	0.035*	0.533	0.297	0.957
Married/Cohabitated®						
Children ever born						
0-2 child/ren	-0.024	0.006	0.939	0.977	0.533	1.791
3-4 Children						
5 and above®						
Birth interval						
11-24 Months	-1.382	5.156	0.023*	0.251	0.076	0.828
25-36 Months	-.993	2.679	0.102	0.370	0.113	1.217
37-59 Months	-1.061	2.479	0.115	0.346	0.092	1.297
Above 60 Months®		6.555	0.088			
Husband's education						
Illiterate	0.093	0.168	0.682	1.098	0.702	1.716
Primary and above®						
Knowledge of danger signs of pregnancy						
Yes	1.535	25.373	0.000**	4.642	2.554	8.436
No®				1		
Women need care during pregnancy						
Yes	0.119	0.019	0.891	1.126	0.204	6.221
No®						
Women preference of health provider during delivery						
Doctors/Nurses	0.343	1.667	0.197	1.409	0.837	2.370
HEW	0.751	2.371	0.124	2.119	0.815	5.513
Others		2.898	0.235			
STUDY AREA						
Intervention kebeles	1.959	67.938	.000**	7.090	4.450	11.297
Non-intervention kebeles®				1		
Constant	-1.772	2.931	0.087	0.170		

® - Reference Category *Note: significant at: *p<0.05, **p<0.001*

4.8.2. Factors Determining Professional Assisted Delivery Care Use

Socio-Demographic Determinants

A logistic regression analysis of the independent variables as predictors performed with the second dependent variable - professional assisted delivery care use. The table of regression analysis indicated, demographic variables – marital status, birth interval and children ever born and a social variable – husband's/partner's education- were found to have significant influence on utilization of professional assisted delivery care use. The result is presented in Table 4.11 below.

Marital Status: The present analysis shows that widowed/separated/divorced women were nearly 94% less likely to use professional assisted delivery care services than married women.

Birth Interval: The chance of women with birth interval 37-59 months to utilize professional assisted deliver care service were found to be 94% less as compared to women in the reference category – with birth interval above 60 months. The analysis shows there was no significant difference between women with birth interval 11-24 months and 25-36 months with women in the reference category.

Children Ever Born: women with 5 and more children ever born were 77.8% percent less likely to use professional assisted delivery services than women with fewer children ever born (2 and less).

Education: In this analysis husband's education was found to be the best predictor of professional assisted delivery service utilization. The chance of using PAD care service among women who were married to husband with post primary education, was 17 times higher than women in the reference category. The chance of women, married to husband with primary education to use professional assisted delivery care during their last live birth was not different from women in the reference category.

Women need care during pregnancy Yes	-3.471	8.414	0.004**	0.031	0.003	0.324
No®						
Women preference of health provider during delivery						
Doctors/Nurses	0.358	0.284	0.594	1.43	0.383	5.332
HEW	0.888	1.167	0.28	2.43	0.485	12.167
Others ®		1.232	0.54			
Knowledge of danger signs of Pregnancy						
Yes	1.033	1.532	0.216	2.809	0.547	14.41
No®						
STUDY AREA	1.105	3.977	0.046*	3.018	1.019	8.939
Intervention						
Non-intervention ®						
Constant	0.351	0.068	0.795	1.42		

® - **Reference Category** *Note: significant at: *p<0.05, **p<0.01, ***p<0.001*

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1. DISCUSSION

Studies of maternal health provide strong evidence of the beneficial effects of maternity care on women's health outcome. While availability is major barrier to accessing care in many developing countries, lack of awareness on the importance of maternity care and complications related to pregnancy remain important barriers to maternity care utilization even in areas where services are available. The main purpose of this study was to assess the significance of health extension program intervention in maternal health care knowledge, attitude and utilization in rural kebeles of Adama woreda, East Shewa zone of Oromia region. To see the effect of the intervention sample of women were selected from two strata; Intervention and Non-Intervention kebeles. The first one is with kebeles where health extension program has been implemented for four and more than four years and the second with recent/no implementation.

The primary sources of information were women selected using the criteria that they had at least one live birth in the five years prior to the study or/and pregnant at the time of the study. Initially it was planned to collect information from 588, half from women in intervention kebeles and the other half in non-intervention kebeles and only 582 women participated and the response rate was 99%.

This study used data on women's background characteristics, knowledge, attitudes, and health extension program availability to examine the determinants of maternity service utilization, particularly ANC and professional assisted delivery care utilization; and to estimate the relative importance of health extension program intervention on level of maternity care use.

Univariate analysis was used to illustrate the socio demographic characteristics of respondents, knowledge, attitude and practice of maternity services of women in the two

As the theme of this study is to assess the significance of health extension program (HEP) intervention in rural Adama, the effect of the intervention was assessed based on the level of service utilization other than knowledge and perception on maternity services.

The finding of this study suggested that there is improvement in service use as compared to EDHS 2005 as well as findings by other researches before DHS 2005. From all the study kebeles, 51.9%, 7.9% and 10.4% of women received antenatal care, delivery and postnatal care services, respectively. From the overall ANC attendants, around 35% received the service from HEWs.

The present study is to a large extent consistent with findings of other recent studies carried out after the launching of the health service extension program intervention. The large scale baseline survey for "The Last 10 Kilometers" (L10K) Project, which was carried out in late 2008 and early 2009 in the four major regions of Ethiopia (Amhara, Oromia, SNNPR and Tigray), found out over half of the women (54%) received ANC and 9.2% delivered at health institutions for their most recent birth in the year preceding the survey. Health centers and health posts reported to be the major sources of antenatal care, as reported by 52% and 32% of the women from the four regions (JSI, 2009). The proportion of women who received service from health post compares the present study. The observed difference in the estimate of utilization between this study and the L10K survey may be accounted for two factors. The first one attributed to differential in the socio cultural and economic factors and second is the methodological difference; as the unit of analysis in the L10K survey is women in the reproductive age and those with child age under two years.

A study conducted in Benishangul Gumuz region Metekel zone indicated 49.8% of women who had at least one delivery in the past five years before the survey time (January – February 2007) had at least one antenatal care visit (Gurmessa, 2009).

A study in South West Ethiopia indicated 80.3% of women received prenatal care during their last pregnancy in a five years proceeding March 2008. However, only 28.3% of those who received ANC gave birth at health facilities. The high coverage of antenatal care observed in the study by Abyot, (2008) could be attributed to the accessibility of the study

women to use ANC service is higher than their counterpart (Belay, 1997). The differential in seeking maternity care may be attributed to cultural influence on women particularly rural women to be pregnant and have a child out of wedlock. It therefore, seems reasonable to assume that most such pregnancies are unintended / unwanted. Moreover, women with such pregnancies may initially attempt to deny their pregnancies to themselves and to conceal them from others. As a result, these women become less motivated to seek any of the maternity cares compared with their married counterparts.

Mother's age at birth has a vital role in the tendency to use antenatal care service, especially among women age at birth between 25 and 35. This also revealed by studies by Belay (1997) the risk of antenatal care delay was higher among older women (Belay, 1997). As it is shown in this study, the number of children consistently increases with age – the mean number of children among women aged 40 years and above is more than 8 children. Moreover, women with 5 and more children ever born are 77.8% percent less likely to use professional assisted delivery services than women with fewer children ever born (2 and less). There could be two explanations for this. One is besides other works of rural women; older mothers may lack time to go to clinics for antenatal care as they have to take care of their children. Second, mothers of older age group might have a tendency of not using maternity care service especially if the previous pregnancies and deliveries were smooth.

In this study the level of husband's or partner's education has influence on the decision of women to use skilled birth attendant during childbirth. The data suggested that women married to husband with post primary education are more likely to use professional assisted delivery care service than women married to illiterate husband. This finding is consistent with findings of other studies on maternity service utilization (Mesfin *et al.*, 2004). The explanation for this; may be due to the socio economic and cultural influence on the level of decision making autonomy of illiterate rural women in seeking care. As a result, women's decision to use maternity care service may depend on the decision of her husband.

A *second perspective* is the *accessibility* (for information and service) explanation which is based on the principle that access to health facilities and personnel are equally important in the use of maternity care services, especially in developing countries. This explanation on the use of maternity services may be relevant in rural Ethiopia. Like other developing countries,

in Ethiopia, access to maternity health service and information is very limited for rural women living far from facilities. For instance, studies by Yared (2003), Yared and Asnakech (2004), Belay (1997), Gurmessa (2009) and Mesfin (2004) in Ethiopia have shown that accessibility is a major determinant of greater use of health facilities for maternity health care service.

The differential in maternity service use by rural women particularly with limited access to health information and service for some reasons is far above the ground. Education and access to information may play a greater role for better health outcome. It is clear that the better the information women have, the better the understanding and acceptance of the maternity service and more likely to be user. The assumption underlying this 'access to information' explanation is that women may assign a minimal seriousness to pregnancy related complication. This is may be because they consider such conditions to be normal based on their understanding and experience of the condition. Moreover, rural women may not consider maternity services as life saving intervention due to lack of information. As a result they may not seek available care services even when there is complication.

Studies have shown women with better knowledge and perception about pregnancy and delivery related services are more likely to utilize maternity services (Abyot, 2008 and Gurmessa, 2009). This study revealed that, women's knowledge of the danger signs of pregnancy was the best predictor of utilizing maternity services. The chance of women having the knowledge of complication during pregnancy to use antenatal care is nearly five times higher than women with no knowledge. This might imply that women who are able to recognize danger signs of pregnancy could have greater fear of the possible outcomes of the signs so that they would be encouraged to seek care.

In fact, there is evidence to suggest that information given by health professionals in pregnancy complication was sufficient to make a tangible difference in mothers' knowledge or practices. The present study indicated that more than 88% of women in intervention kebeles had accessed information on danger signs of pregnancy from health providers, Doctors/Nurses/HEWs. Increasing the knowledge of women and improve their attitude towards maternity health service is vital to a greater improvement of utilization. This can be

done by intensifying static and outreach based information, education and communication activities on the importance of maternity care for all mothers using different approaches.

As it is explained, the rural-urban differential in the use of maternal health care services is due to differences in the availability and accessibility of maternal health care facilities including the distance to the health facility. Countries implement possible approaches to improve accessibility and availability in order to increase utilization. A study conducted in India by Navaneetham (2000) demonstrated the higher likelihood for rural woman receiving antenatal check up due to the role of multipurpose health workers who visit and provide antenatal care at home. This health worker plays a pivotal role in providing information on and services related to maternal health care (Navaneetham, 2000).

This study again supports the second explanation on factors of decision to use maternity service - accessibility hypothesis. In consistent with the finding of Indian study, the present study revealed the importance of availing maternity service closer to the community at grass root level. The univariate analysis shows, women in the intervention kebeles utilized service better than women in non-intervention kebeles. The Bivariate analysis also shows the existence of significant association between study area (with categories intervention and non-intervention) and the two maternity services use. This study indicated that availability and early implementation of health extension program intervention has improved maternity service utilization of women in these kebeles. Women in intervention kebeles were seven times more likely to use antenatal care service and three times to use professional assisted delivery care than women in non-intervention kebeles.

The reason for the high level of utilization of maternal health services among women in intervention kebeles compared with their counterparts is easily understood. As in the other countries like India, the Ethiopian government designed a strategy to reach the community through the health extension workers in three different approaches; model family, community based health package, and health post. These approaches helped to diffuse health messages leading to the adoption of the desired practices and behaviors by the community.

Women in intervention kebeles tend to benefit from increased knowledge and access to maternal health services compared with their counterparts. This is because, health posts are

more accessible and the various health promotion programs through different strategies helped to improve knowledge of HEP intervention kebeles residents and explain the close connection between being in intervention kebeles and use of maternal health services.

5.2. Conclusion

- Socio demographic variables such as marital status, birth interval, children ever born and husband's/partner's education- have significant influence on utilization of professional attended delivery care use.

- Maternal age, marital status and birth interval, were found to be predictor variables of ANC utilization. The variables, number of children ever born and education were found to have no effect on the utilization of ANC service.

- Knowledge on the dangers signs during pregnancy has significant influence on utilization of ANC service.

- The overall impression given by this study is that women in HEP intervention kebeles better utilize service

In conclusion, the analyses have provided some useful insights into the significance of HEP intervention in addition to social-demographic factors in shaping the use of maternity services in rural Adama. The findings suggest that improvement of maternal health in rural areas would require the introduction of several measures, the most effective being the intervention of community level programs.

5.3. Recommendation

Based on the major maternal health care indicators such as ANC and professional assisted delivery care service use, this study clearly demonstrated that the utilization of maternity service by women in rural Adama has improved since the introduction of health service extension program intervention. To further improve the utilization of such services and improve the health of mothers and newborns, the following suggestions are made:

The study shows the gap in maternity service utilization between the intervention kebeles and non intervention kebeles. Expansion of health extension program interventions while strengthening the available ones to provide quality service is vital to improve women's health and attain MDG 4 and 5.

Since the health service extension program (HSEP) was found to be one of the feasible alternatives for the improvement of service use by the community at grass-root level, it is suggested that:

- The government should allocate more funds to strengthen the program and expand network of extension services to reach each and every women.
- Concerted efforts of all parties – governmental and non-governmental organizations - should be in place to improve the capacity of the health posts as well as skill of HEWs to provide quality maternity services to better improve use.
- Improvement of the reproductive health conditions in the country will require all determinants of the phenomenon to be given the same level of attention and resources. International and non-governmental agencies trying to address the health and population problems of Ethiopian need to consider how women can attain at least secondary level of education, alongside health and population programs.

Further research should be conducted on:

- Quality of maternal health services, particularly service provided by health posts/health extension workers
- Different researches revealed the greater gap between level of antenatal care service utilization and professional attended delivery service. Further research is needed why women do not seek care during delivery while she has awareness of complication in delivery and after delivery.

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Annex I - HOUSEHOLD LISTING - FORM

ADDIS ABABA UNIVERSITY

COLLEGE OF DEVELOPMENT STUDIES

INSTITUTE OF POPULATION STUDIES

Survey on the Significance of Health Extension Program for Maternal Health Care Service Utilization in Adama Wereda, East Shewa Zone of Oromia Region

SECTION I: AREA IDENTIFICATION

Name of Woreda	*Kebele NAME* _____	*Enumeration Area Code*	*Name of Data Collector*	*Name of Supervisor*
	Code _____	*Code* _____		

SECTION II: HOUSEHOLD LISTING

Serial No. (HHs)	Name of Head of Household	From the usual member of your household are there pregnant women or a woman who have given live birth in the last 5 years? Yes --- 1 No --- 2(SKIP to Next HH)	Eligible of Women (age 15 - 49)		Remark
			Serial No. (Women)	Name of pregnant women or a woman who have given live birth in the last 5 years.	Serial Number for Selected Women
1	2	3	4	5	6

ANNEX – II: Structured Questionnaire and Focus Group Discussion Guide

Addis Ababa University
College of Development Studies
Institute of Population Studies

HOUSEHOLD QUESTIONNAIRE

SECTION I - AREA IDENTIFICATION

S/N	Identification	Name	Code	
01	Region			
02	Zone			
03	Woreda			
04	Kebele			
05	Enumeration Area			

Introduction and Consent

Hello, my name is _____ and I am working with a student from Addis Ababa University. I'm here to learn more about the knowledge, attitude and practice of the community towards the maternal health service (antenatal, delivery and postnatal care). The main objective of the study is to assess the significance of health extension program in maternal health care service utilization in your kebele. I want to know what difference it makes during its implementation. I'll conduct interview with women who had at least one live birth in the last five years or currently pregnant and you are one of these women. Information from these discussion and interview will help the woreda to further strengthen the effort so that it benefits the community/women in the Kebele.

Your participation in this study is entirely voluntary, if at any time during the interview you feel uncomfortable, you can chose not to answer particular questions or you can discontinue the interview at any time in the process. The information you provide is strictly confidential and will not be released to a third party. Are you willing to participate in the study?

Do you have any questions? With your permission, may I proceed with the interview question?

☐ Yes (Proceed with the interview) ☐ No (Thank the person for his/her time and end)

PART I: RESPONDENT's BACKGROUND CHARACTERISTICS												PART II: REPRODUCTION	
100	101	102	103	104	105	106	107	108	109	110	111	201	202
H Household Serial Number /listing form **column 1**	Women Serial Number.(Listing form Column 4)	How old are you? (in complete year)	What is your religion?	To which ethnic group do you belong?	Can you read and write?	Have you ever attended school?	What is the highest grade you have completed?	Marital Status	How old were you when you first got married?	What is your Husband/partner's educational status?	How long have you been living continuously in this kebele?	How many children have you ever born in your life?	How old were you when you had your FIRST child?
			1. Orthodox 2. Catholic 3. Protestant 4. Muslim 5. Traditional Others _____	1. Oromo 2. Amhara 3. Tigre 4. Gurage Others _____	1. Yes 2. No	1. Yes 2. No → **Q 108**	**1.** Cannot read and write **2.** Grade 1-6 **3.** Grade 7-12 **4.** Tech. / Voc. Certificate **5.** University /College diploma **6.** Degree and above	**1.** Currently married **2.** Widowed **3.** Divorced **4.** Separated **5.** Living together **6.** Never Married → **Q111**	Years (in completed years)	**1.** Cannot read and write **2.** Grade 1-6 **3.** Grade 7-12 **4.** Tech. / Voc. Certificate **5.** University /College diploma **6.** Degree and above	If less than one year, record "00". Years ___ Always --- 99	Total ___ ***For women with first pregnancy go to* Q301**	Years _____

PART III - KNOWLEDGE ON HEALTH EXTENSION PROGRAM AND MATERNITY SERVICE

20 | 101 | 310

PART II: REPRODUCTION

100	101	203	204	205	206	207	208	209	210	211	212	213
Household Serial Number /listing form **column 1**	Women Serial Number (Listing form Column 4	How many of the children still alive?	Do you have any son or daughters to whom you have given birth who are **now living with you?**	How many sons and daughters Alive with you?	Do you have any son or daughters to whom you have given birth who are alive but **do not live with you**?	How many sons and daughters are live but do not live with you?	Have you ever given birth to a boy or girl who was **born alive but later died**? *IF NO, PROBE: Any baby who cried or showed signs of life but survived only a few hours or days?*	How many sons and daughters have died?	**For confirmation**	How old is your LAST CHILD? *If less than one year, record '00'*	How old were you when you had your last child? **Mother's Age**	What is the birth interval between this most recent birth and the immediately preceding birth? **For women who have 2 and more children** [Record in Years and Months]
		Total___	1. Yes 2. No → **Q 206**	Total ____	1. Yes 2. No → **Q 208**	Total _____	1. Yes 2. No → **Q 210**	Total ___	Check ***Q205 + Q207 + Q209 = Q201***	***Child's Age Years***__	Years ___	Year _____ Months_____
												Y ___/__ M__/__
												Y ___/__ M__/__
												Y ___/__ M__/__
												Y ___/__ M__/__
												Y ___/__ M__/__
												Y ___/__ M__/__
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												Y ___/__ M__/__
												Y ___/__ M__/__
												Y ___/__ M__/__
												Y ___/__ M__/__

PART IV	CURRENT PREGNANCY		ANTENATAL CARE VISIT: CURRNT PREGNANCY /LAST BIRTH							
	401	402	403	404	405	406	407	408	409	410
mmm n 4)	Are you pregnant	How many	Name of child	How old is (NAME)?	When you were	What was your main	Which institutions	What were the two **major** reasons that you were not	Why did you prefer to go to this	How many months

PART III - KNOWLEDGE ON HEALTH EXTENSION PROGRAM AND MATERNITY SERVICE

Household Serial Number /listing form **column 1**	Women Serial Number (Listing form Column 4)	319	320	321	322	From where did you know of the danger signs/symptoms during pregnancy, delivery and postpartum?			What would you do in case of complications arises?		
		In your opinion, does a woman need to have a check up immediately after delivery in the postpartum phase? 1. Yes 2. No → Q 321	Why should a woman need to receive a checkup immediately after delivery in the postpartum phase? ***Record all mentioned*** ***Refer the list of codes***	Do you know the danger signs that could occur to mother during the first four weeks after delivery? 1. Yes 2. No → Q323	If yes (Q 321), mention all you know ***Refer the list of codes*** ***Record all mentioned***	1. Hospital /health Center/ Private clinic 2. Health Post/HEWs 3. TTBAs 4. UTBA /VHW/Traditional healer 5. Friends/Relatives 6. Radio/ TV Other (specify) _____ 9. Do not know			1. Go to government hospital/HC 2. Go to private hospital/HC 3. Go to HP/call HEWs 4. Go to/call TTBA 5. Go to/call TBA, VHW, Traditional healer 6. Other (specify) _____		
						Q323a **Pregnancy**	Q323b **Delivery**	Q323c **Postpartum**	Q324a **Pregnancy**	Q324b **Delivery**	Q324c **Postpartum**

		ANTENATAL CARE VISIT: CURRNT PREGNANCY /LAST BIRTH				DELIVERY SERVICE (Last Birth)				POSTNATAL SERVICE (Last Birth)		
		411	412	413	414	415	416	417	418	419	420	421
Household Serial Number	Women Serial Number (Listing form Column 5)	Totally how many ANC visits did you make during this pregnancy ? Number of Visits____	*Assume that you are pregnant now;* Where do you prefer to attend ANC? 1. Health post 2. Hospital/HC 3. Private Clinic 4. Pharmacy Others (Specify)____	What is your reason for not preferring health posts for ANC? 1. Too far from my village 2. Fear on skill of HEWs 3. Bad behavior of HEWs 4. Poor quality service 5. Language problem Others _____	What was the main reason that you were not attending ANC clinics? (record the first two main reasons mentioned) 1st ____ 2nd___	Where did you give birth to (NAME) 1. Hospital/HC 2. Health post 3. Private Clinic 4. Pharmacy 5. Home Others (Specify)____	Who assisted with the delivery of (NAME)? **PROBE FOR MOST QUALIFIED PERSON** 1. Health professional 2. HEWs 3. TTBA 4. UTBA/CHA/ Traditional healers 9. Do not know Others _____	Did you know health extension workers are able to attend delivery? 1. Yes 2. No → Q419	Why didn't you call for HEWs? 1st ____ 2nd ____	After (NAME) was born, did you receive checku p on your health? 1. Yes 2. No → Q 422	How many days or weeks after the delivery did the first check take place? '00' DAYS IF SAME DAY Days ___ Weeks __	Who checked on your health at that time? **PROBE FOR MOST QUALIFIED PERSON** 1. Health professional 2. HEW/ Health Post/ 3. TTBA 4. UTBA/CHA/ Traditional healers 9. Don't know Others____
1.												
2.												
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Household Serial Number Listing form Column 1)	Women Serial Number (Listing form Column 5)	*Ask QUESTION 422 to 427 Only to Those Women Who Visited Health Posts for Any of The Maternal Health Service Within the Last Five Years*					
		422	**423**	**424**	**425**	**426**	**427**
		Only to Those Women Who Visited Health Facilities for Any of The Maternal Health Service Within the Last Five Years How was your satisfaction with health extension workers' service in terms of ..... **1 - Very Dissatisfied** **2 - Dissatisfied** **3 - Fair** **4 - Very Satisfied** **5 - Satisfied**					
		The way the service provider respect /treat you	The length of time you had to wait to meet with the service provider.	The length of time you spend with the provider.	The availability of medical supplies.	Information given to you about pregnancy, childbirth and postnatal care	The overall quality of the health service.

Q 322

1. Severe vaginal bleeding
2. Frequent unconsciousness
3. Swelling of hands face
4. Blurred vision
5. Severe headache
6. Severe vomiting
7. High fever

Other (specify)_____

Q 418

1. HEWs were not in their post (on seminar /training/ workshop
2. It was on weekend
3. HEWs were far from this village
4. HEWs' lack of confidence to attend delivery
5. I prefer others
6. HEWs referred me to Hospitals/HC
7. There was no HEP
8. HEWs assisted the birth

Q 414

1. No knowledge about ANC
2. Too busy to attend ANC clinics
3. Being in state of good health
4. Expenses for ANC is unaffordable
5. ANC clinics are far from my home
6. Waiting time long at ANC clinics
7. ANC attendance is harmful
8. Because of religious reasons
9. Husband/partners disapproval
10. Bad behavior of care providers
11. Poor quality service
12. Language problem
13. Dislike to be examined by male health worker

Others Specify _____

Focus group discussion guide

Consent

Hello, my name is _____ and I am working with a student from Addis Ababa University. I'm here to learn more about the knowledge, attitude and practice of the community towards the maternal health service (antenatal, delivery and postnatal care). The main objective of the study is to assess the contribution of health extension program in maternal health care service utilization in your kebele. We want to know what difference it makes during its implementation. Information from this discussion will help the woreda to further strengthen the effort so that it benefits the community/women in the Kebele.

In this group there are no right and wrong answers. Everybody should express the opinions or attitude pertinent to him or her. When you express your opinions you are encouraged to be honest in your views. We want you to focus your comments on the program not towards each other or members of this group.

At this point it is important that we obtain your consent for conducting the session. Your remaining in the session indicates that you voluntarily agree to participate in this discussion program. You have the right to refuse to answer any questions and to end the discussion if you find it necessary to do so.

Do you have any questions? With your permission, may I proceed with the discussion questions?

Date _____ Time _____

Kebele _____ Number of Participant _____

1. Who did the implementation of HEP start in your kebeles? Number of HEWs? Is the location of the health post benefits the majority? Why?
2. How do you see the status of Maternity care at health post? Equipments and supplies, Infrastructures, Facilities, skill and the Quality of care provided by HEWs
3. What do you understand by danger signs during pregnancy, childbirth and postpartum period? The major sources of information?
4. In your opinion what are the most important factors that affect maternity service provision? Where do women in your area prefer to deliver? Home, health facility, Why? Whom they prefer for attendance?

Declaration

The thesis is my original work, has not been presented for a degree in any other university and that all sources of materials used for the thesis have been duly acknowledged.

Munaye Seifu		Sep 1, 2010
Student	Signature	Date

I confirm that this thesis has been submitted with my approval as the supervisor of the same.

Dr. Assefa Hailemariam		01/09/2010
Advisor	Signature	Date