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Determinants of contraceptive use among currently married women in Amhara and Oromiya Regions of Ethiopia

A thesis submitted to the Department of Statistics, Faculty of Science, University of the Western Cape in partial fulfillment of the requirement for the Degree of Master of Philosophy in Population Studies

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Key Words

- Contraception
- Contraceptive prevalence rate
- Demographic characteristics
- Demographic and Health Survey
- Ethiopia
- Family planning methods
- Soc-economic characteristics
- women
- Total Fertility Rate
- Unmet need

Abstract

Inadequate family planning services exist in Ethiopia, where total fertility and population growth rates are markedly high. However, Ethiopia is among the developing countries where the rate of population growth is the highest and contraceptive prevalence rate is the lowest.

The purpose of this research is to study the effect of different demographic and socio economic factors on the contraceptive use among currently married women of age 15-49 in the two regions of Ethiopia, Amhara (17,214,056) and Oromiya (27,158,471). Data are obtained from the 2005 Ethiopian Demographic and Health Survey (EDHS). Information on contraceptive use was provided by current use 1334 (14.7), future use 4017 (52.0), unmet need for spacing 1817 (20.0) and limiting 1249 (13.3) currently married women aged 15–49 interviewed in the 2005 Ethiopian Demographic and Health Survey (EDHS).

A cross-sectional, descriptive and comparative study using the quantitative research method is chosen to address the research question. Bivariate and multivariate analysis are also undertaken to study the relationship of a set of explanatory (independent) variables with current contraceptive use. To determine a relationship or association between variables and see which variables most affect the dependent variable according to the developed hypotheses, the goodness of fit of Pearson's chi square method is used. The data also be analyzed using Statistical Packages for Social Sciences (SPSS).

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Declaration

I declare that ***Determinants of contraceptive use among currently married women in Amhara and Oromiya regions of Ethiopia*** is my own work, that it has not been submitted before for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

ZELEKA TEFERI **November 2009**

Signed ----------

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Acronyms

AA ------ Addis Ababa

BDHS ------ Bangladesh Demographic and Health survey

CBR -------- Crude Birth Rate

CDR --------- Crude Death Rate

CSA --------- Central Statistical Agency

CPR --------- Contraceptive Prevalence Rate

EDHS --------Ethiopian Demographic and Health survey

FP ----------Family Planning

MOFED ------Ministry of Finance and Economic Development

MOH ---------- Ministry of Health

MWRA ------- Married Women of Reproductive Age

NFFS --------- National Family and Fertility Survey

NGO ---------- Non Governmental Organization

TFR ---------- Total Fertility Rate

UN ---------- United Nation

UNICEF ------ United Nation Children's Fund

UNFPA ------- United Nation Population Fund

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CHAPTER ONE

INTRODUCTION

1.1 Brief overview of Ethiopia

Ethiopia is situated in the horn of Africa with the population of approximately 73.9 million as of 2007 census of which more than 61 million (84%) live in rural areas (CSA, 2008) with the largest proportion residing in Oromiya (27,158,471) and Amhara (17,214,056) regions. Ethiopia is one of the most populated countries in Africa ranking second after Nigeria. It is a multi-ethnic country with approximately 85 nations and nationalities contributing their own culture and language.

Ethiopia is an ancient country with a rich diversity of peoples and cultures and a unique alphabet that has existed for more than 2000 years. However Ethiopia is considered to be the poorest country in the world. As one of the least developed countries Ethiopia is faced with many social and economical problems. As Zewudu and Sibanda (2003) illustrate that the high fertility of the population is attributed to low levels of contraception, cultural values favoring large family size, low socioeconomic development and high infant and child mortality. In view of this most Ethiopians are suffering from the lack of basic needs of life such as food, clothing, housing, and health care, education, safe and healthy environment as consequences of the uncontrolled and rapid increase of population growth.

The country follows a federal system of government with nine regional states and two city administrations. The regional states are subdivided into zones and the zones into weredas and as a result there are 63 zones and 540 weredas in the country. Ethiopia has a population of 73.9 million as of 2007 census, with the largest proportion residing in Oromiya (27,158,471) and Amhara (17,214,056) regions. As a result of high growth rate, the projected population of the country is expected to reach 118 million in 2025.

As health status indicators declared Ethiopian life expectancy were 50 years for females and 48 for males (2007 est. CSA). Literacy rate was estimated to be 42.7% in 2003 (CIA, world fact book). The crude birth rate for (2008 est.) was 45.2 per 1000, and the death rate was 11.83 per

1000 (CIA world fact book). Infant mortality remains high, with an IMR of 82.64 per 1000 live births. The population rate of natural increase was 2.6% (2008 CSA), and despite a governmental program supporting family planning and the improvements over the last twenty years, total fertility rate remains high (5.5 in 2000 and 5.4 in 2005) and current contraception use, although more important than in the past (4.8% in 1999, 8% in 2000, 14.7% in 2005), is still relatively low (2000 & 2005 EDHS). With relatively high birth rates and high mortality rates, Ethiopia is still in the early stages of demographic transition.

1.2 Brief over view of Amhara and Oromiya Regions

The Amhara National Regional State is one of the Federal Regional States of Ethiopia. The current estimated population of the Amhara region is 17,214,056. About 87 percent of the population lives in rural areas (CSA, 2008). The majority of the population is from Amhara ethnic group, which is estimated to be 91% and other include the Agaw(5%), Oromo (3%) and the rest are from different ethnical group. Of the total population of the region 82.5% are Orthodox Christians, 17.2% are Muslims and 0.3% constitutes the remaining religions. The TFR for the region is 5.1 children per woman (2005 EDHS), which is lower than the adjusted TFR of 5.9 reported by the 2000 Ethiopia Demographic and Health Survey. The contraceptive prevalence rate of the region according to EDHS 2005 is 16%.

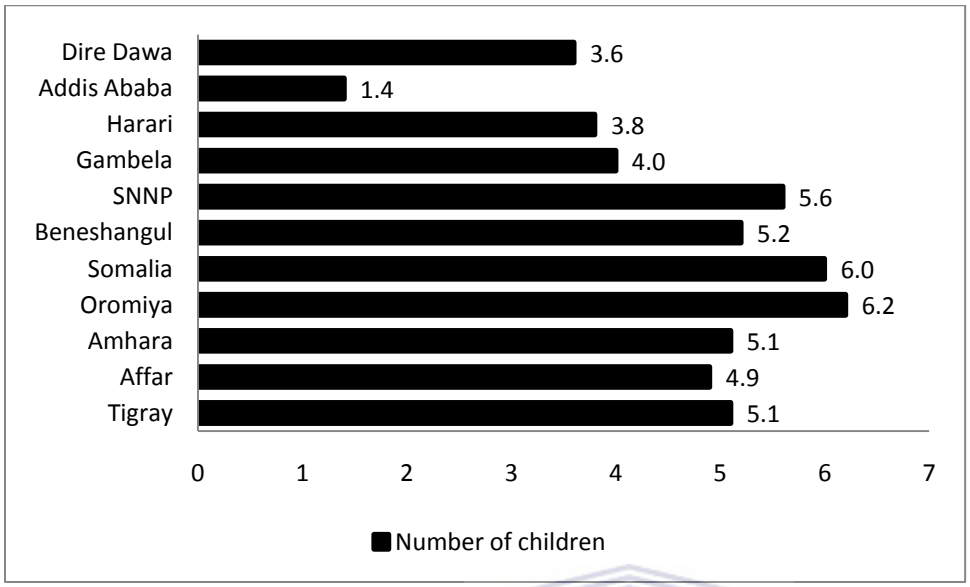
With a population of 27,158,477 as 2007 census (CSA 2008), 36% of the country's total, Oromiya is one of the largest regions in Ethiopia in terms of size and population. The majority of people in Oromiya (88%) live in rural areas, both arable and pastoral areas (CSA, 2008). Major religions in Oromiya include Orthodox Christian, Muslim and Protestant with major ethnic groups including Oromo (88%), Amhara (7%) and 5% constitute the remaining ethnic groups (CSA, 2008).

Literacy rates are significantly higher among Oromo males than females. While 36 percent of all residents of Oromiya were literate in the year 2004 the rural rate was much lower (31%) than the overall urban rate (72.4). Only 17% of the female residents of rural Oromiya were literate with

all of its implication for their way of life, health, child bearing and rearing, maternal and child nutrition, as well as disease prevention. The Oromiya region has the highest fertility in the country. The total fertility rates is about 6.2 children per woman (2005 DHS) indicate that Oromiya women currently in their reproductive years will have one child more than Amhara women (5.1) at the conclusion of their reproductive performance.

The regions chosen to participate in this study were done via convenience selection. The fertility rate and the rate of population growth are high when compared within the country as shown in Fig 1 below. The proximate determinants of fertility are the biological and behavioral factors through which social, economical and environmental variables affect fertility (Bongaarts et. al, 1994). These determinant factors can be accounted for the regions' for high fertility, including early age at marriage, closely spaced births and a large reproductive life span and some cultural beliefs giving to children in a family. The fast and large growth of population is a consequence of giving less worth toward family planning of course related with other factors. Some studies explained the use of contraceptive because of its relationship with fertility and birth spacing. Contraceptive use has a significant impact on reducing women's fertility level (Ntozi & Ahimisibwe, 2001). Family planning services have become one of the best interventions of choice to slow population growth of a country. It is believed that child spacing and the timing of every birth can improve survival chance of the child and can maintain good physical and emotional health for the whole family. This study tried to find the factors which contribute to the influence of family planning usage in those regions. The researcher of this study does hope and assume that the analysis and the results on these regions will reflect and give some valuable ideas to improve the usage of FP to the regions and the country as a whole.

Fig1 Total fertility rates by back ground characteristics and by regions.



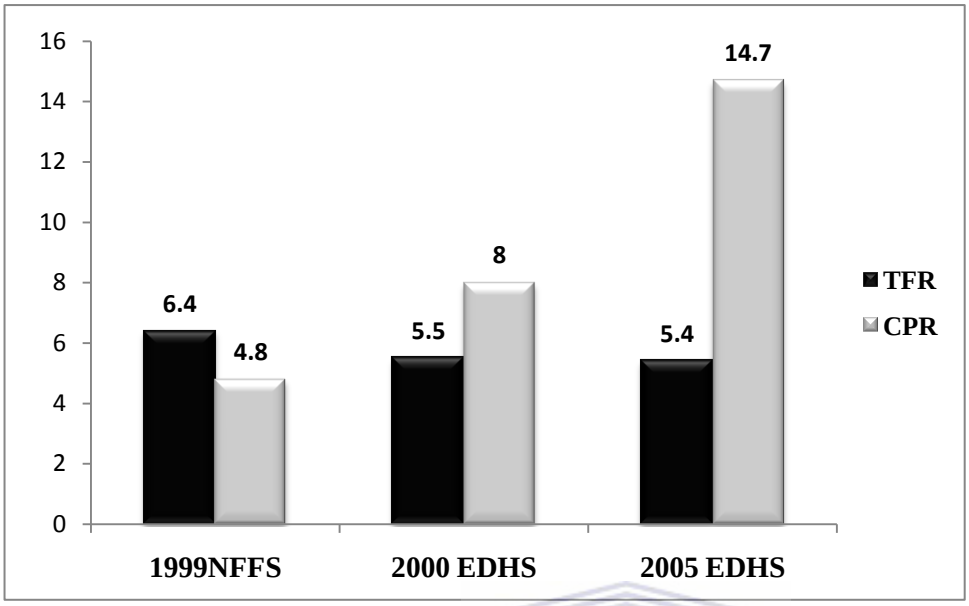
Source:-EDHS 2005

1.3 Trends of fertility and contraceptives use in Ethiopia

Available data indicated that total fertility increased significantly between 1970 and 1990. It increased from 5.2 children per women in 1970 to 7.7 child in 1990. In Ethiopia, fertility appears to have increased continuously in the rural areas during the period of 1970 and 1990 while in urban areas is increased between 1970 and 1984 and then declined moderately. In the rural areas TFR increased from 5.8 children per woman in1970 to 8.1 in 1984 and to 8.2 in 1990. In the urban areas however it increased from 4.7 children per woman to 6.3 between these years but declined to 5.7 in 1990. This decline in urban fertility may partly due to the increasing of awareness and use of contraceptive among urban women.

Demographically, as stated before Ethiopia is at the earliest stage of fertility transition and has intermediate levels of fertility (TFR of about 5). TFR was around seven children per woman during the mid 1990s. Since then, it has declined, particularly after 1998. TFR declined from about 6.0 children per woman to 5.4 in 2004/05 (EDHS).

Fig 2 Percentage distribution of TFR and CPR in Ethiopia according to EDHS and NFFS



Data from demographic and health surveys (DHS) showed that in 1992 contraceptive use among married women in many African countries ranged between a low of 1.0 to a high of 25.0 percent. The 1990 Family and Fertility Survey indicated that the prevalence of contraceptive use among sexually active women under age 20 in Ethiopia was 2.6 percent only. Despite high knowledge of family planning (87%) only 15 percent of currently married women are using any contraceptive method (EDHS, 2005). This is a very low percentage. Similarly the percentage of CPR in Oromiya (13.6) and (16.1) in Amhara is significantly lower relatively to awareness of long acting of family planning methods among currently married women.

Family planning services have become the interventions of choice to slow population growth. It is believed that child spacing and the timing of every birth can improve survival chance of the child and can maintain good physical and emotional health for the whole family. Social and cultural factors have been shown to influence couple's decision to use contraception, even with the availability of contraceptives. According to several studies the low Contraceptive Prevalence Rate (CPR) in Ethiopia results starting from social, economical, cultural and religious barriers to limited availability and access to FP methods. On average an Ethiopian woman delivers about 6 children in her reproductive years and the population is growing by 2.9% per annum. Maternal

and child mortality rates are among the highest in the world. The contraceptive prevalence rate is estimated at 14.7%. There is close relationship between the level of fertility and contraceptive use.

Among currently married women of childbearing age (15-49), total contraceptive use stood at 14.7 percent in Ethiopia in 2005- 13.9 % for modern methods and 0.8 % for traditional methods. Injectables were the most common modern methods used (9.9 %), followed by the pills (3.1%). (EDHS, 2005)

Table 1.1 Basic key indicators

Indicators	Ethiopia	Amhara	Oromiya	Sources
Population	73.9 million	17.2 million	27.1million	CSA , 2008
Annual growth rate	2.6	1.7	2.9	CSA, 2008
TFR	5.4	5.1	6.2	EDHS 2005
CBR	45.2	-	-	World Fact Book, 2006
IMR	77	94	76	EDHS, 2005
CDR	15	-	-	World Fact Book, 2006
CPR	14.7	16.1	13.6	EDHS 2005
Unmet need	34	30	41	EDHS 2005
Literacy	42.7	-	-	World Fact Book, 2006
Life Expectancy	49	-	-	World Fact Book, 2006

- Not available

1.4 Back ground of the research problem

The lack of information on population and health characteristics has been the main barrier to researchers in the field to undertake such studies in Ethiopia as general. This situation is changing now because of the availability of various databases that provide information on population and health characteristics. This offers an opportunity to analyze the available data, especially, in order to investigate the existing fertility levels and trends and the health related issues in the country as well as in the regions.

When the 2007 census results are announced the population of Ethiopia was about 74 million. Further, by the time the results were actually announced in 2008, another millions people had already been added to Ethiopia's population. With a growth rate of 2.6 percent per year, the

country's population is on track to double within another 25 years. In addition to this rapid population growth, the country is facing a number of environmental challenges.

The delivery of the family planning service is one of the important strategies for reducing maternal morbidity and mortality worldwide. Families and individuals currently use either modern or traditional methods to space or permanently stop having children. Contraceptive methods mix usage differs from program to program and region to region based on the availability of the methods, affordability of the services and barriers such as socio economic and demographic factors.

Most Ethiopians seem to want a relatively large number of children, and this may continue until when there is greater economic development and urbanization, improved literacy levels and culturally sensitive community-based FP are promoted throughout the country especially in rural areas where poverty, illiteracy and rural residence inequalities are widening in some variables rather (Assefa et'al, 2007). A study conducted in Kenya has shown that unmet need among couples seemed to decline with increasing education (Omwago and Khasakhala, 2006). This study further stated that couple who are more educated can afford to buy contraceptives, are more likely to reside in the urban areas where contraceptives are more accessible, are more informed about the available methods and are more likely to prefer small families than their less educated counterparts. As a result, those with no education had the greatest unmet need.

The Ethiopian demographic and Health survey (EDHS) conducted in 2005 revealed that contraceptive prevalence is very low; only 14.7% of married women of reproductive age use any Family Planning method. The unmet need for FP remains high, with one in three currently married women not able to meet their FP needs. While overall awareness of FP methods is high, at 87%, awareness of long-acting methods is significantly lower. In general the CPR is showing a significant growth compared to the 8% in 2000 EDHS and 4.8% in 1990 NFFS. However, the fertility rate did not show any significant statistical change. It was also noted in the report that

urban fertility rate declined while the rural unchanged. At such low levels of use the current fertility inhibiting effect of contraceptive prevalence rate is the single most important direct intervention in reducing fertility.

Contraceptive prevalence was measured at only 15 percent nationally by the 2005 Demographic and Health Survey (DHS). Unmet need for family planning of 33 percent means that one-third of women in the country want to stop childbearing or space their next birth by at least two years, but they are not currently using contraception. Simply put, as a result of lack of access to family planning and less knowledge and attitude Ethiopian women are still having more children than they want. Besides this the unmet need for family planning services of currently married women is still slightly decline from 36% in 2000 to 34 % in 2005.

Contraceptive use in the Amhara region is consistent with the low national levels. Only six percent of women of reproductive age in the Amhara Region currently use contraception and only 16.1 percent of married women are currently using contraception. Most women who use contraception are using a modern method: less than one percent of women are using a traditional method. Rural-urban differences in contraceptive use are striking. Over one-third (36.5 percent) of currently married women in urban areas of the Amhara region are currently using a contraceptive, compared to only five percent of married women in rural areas. According to 2005 EDHS unmet need for family planning of the region is about 30% which is slightly lower than the national level.

In Oromiya region eighty-one percent of women of childbearing age have heard of family planning. However the percentage of contraceptive use in Oromiya (13.6) is lower than the national average and less than a quarter of the rate in the region with the highest contraceptive prevalence - Addis Ababa (EDHS, 2005). The demand for family planning (met and unmet need) is about 55% which is still very low comparing with some Sub Saharan countries.

1.5 Significant of the study

It is well recognized that one of the potential problem, in the effort towards development in Ethiopia, is the high growth rate of the population. The country has a population policy aiming at balancing the pace of growth rate of population with the corresponding socioeconomic development. Increasing the practice of contraceptive prevalence for fertility regulation is one of the most important strategies to meet the objectives in the policy. However, contraception practice in the country is in its growing stage where it cannot significantly affect the growth rate of population. Moreover, the relatively low practice in contraception among rural women, where more than 85% of people reside, compared to their urban counterparts favor the problem to remain long standing.

The need for any study related to fertility and health should not be ignored because of its great impact on both population growth rate and on other social, economical and cultural parameters. Hence identifying the major barriers of contraceptive use of the regions (where more than half of the population lives) and proposing possible strategies to be taken to improve the problem, may help in increasing the practice of contraceptive prevalence in the study regions in particular and that of the country in general. It is of significance to address, analysis and understands factors that contribute to the use of contraceptives on the decrease of fertility which is also necessary to implement policies related to population need.

The national reproductive health strategy sets specific targets for the provision of family planning services, where it has focused on addressing reduction of unwanted pregnancies and enabling individuals to achieve their desired family size. The intervention areas outlined in the strategy include creating demand for family planning and increasing access to and utilization of quality family planning services, as well as delegating service delivery to the lowest level possible without compromising safety or quality of care (MOH, 2006). The main targets set to measure the progress towards this goal include reaching a contraceptive coverage rate of 60 percent by 2010 and ensuring awareness and increasing demand by 80 percent.

1.6 **Research question**

- What are the demographic, the socio economic and family planning factors that affect the use of contraceptive methods among women in Amhara and Oromiya regions?
- What is the prevalence of contraceptive use in the two regions?
- Which type or types of contraceptive methods is the most wanted by those women of the regions?
- Which of the two regions have the highest contraceptive use among currently married women?
- What does it look like the knowledge about contraceptive use and where to find contraceptives?

1.7 Objective of the study

The primary objectives of this study is to provide a better understanding of reproductive health knowledge and influential factors of contraceptive use among currently married women in Amhara and Oromiya regions.

1.7.1. Specific objectives of the study

This study specifically seeks:

- To determine the prevalence of contraceptive use among currently married women aged 15-49 years.
- To identify the demographic, socio economic and family planning factors that affecting women's contraceptive use.
- To identify the factors that contributes to unmet need for family planning.
- To propose some suggestion and recommendation for the Government and for the concerned bodies.

1.8 Hypotheses

The following hypotheses are formulated and will be tested.

- Contraceptive use will decrease as age increase.
- Women who get married at earlier age are more likely to use contraceptive than those women who get married late.
- The more women get education the use of contraceptives is increase. Better educated women are more likely to use contraception.
- Women who live in urban areas use contraceptive than those who live in rural.
- Employment status also has a positive impact on contraceptive use. Women who are currently working use contraceptive than those who do not.
- Having knowledge about contraception will encourage women to use contraceptives effectively.

1.9 Organization of the paper

This study paper is divided into five chapters. Chapter One is an introductory part that briefs the background of the study and study area with statement of the research problems, objectives of the study, research hypothesis and organization of the thesis. Chapter two discusses some of the related literatures on the topic of the study. The third chapter deals with data and methods which include source of data, method of data analysis operational definition and description of variables, scope of the study and conceptual framework. Chapter four deals with the analyses part of the study. The analyses of socio-economic and demographic and family planning characteristics that have influential on the use of contraceptive among currently married women using descriptive statistics, bi-variate and multivariate methods of analyses with the discussion are included in fourth chapter. Finally, chapter five deals with conclusion and recommendation are presented.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

Contraception has been known since ancient times. In order to present evidence based discussion and reviewing literature that is relevant for the aim of the study was necessary. This chapter presents a review of the literature on the factors that assumed to have effect on women's contraceptive use. It consists of two sections. The first section introduces the general thoughts about the history of contraception and the relation with population growth. The last section enlightens the review of literature on different demographic, socio economic and FP factors that influence women's use of contraceptive.

2.2 General overview on population contraceptives use

A review of the existing literature on the relationship between fertility and contraceptive use and some demographic and socioeconomic factors with the use of contraceptive and unmet need for family planning presented here.

Rapid population growth impacts on many aspects of our lives: health, education, water, food, employment and the environment. The world's population is approaching billion and apparently increasing at rate of about 78 million per year (CIA World Fact Book). At the current annual growth rate of 1.19%, it is expected to double within 60 years. However, the projection of 9 billion by 2050 by UN is improvement over an earlier 40 years estimate (1960 to 2000) during which the population of the world practically doubled, from 3 to 6 billion.

Especially since 1960, several developments have dramatically reduced infant and child mortality through out the world due to some basic reasons such as the fabricated of different medicines to eradicate fatal diseases and introducing of childhood immunization programs over the world. During the same period, the "green Revolution" greatly boosted food output through

the cultivation of disease resistant crops, and the use of fertilizers and more effective farming methods. These changes have contributed to increase in human population growth rates.

Different countries have different population structure, leading to different types of problems. The population increase in the less developed countries will be largely in the reproductive age classes. Even if average family size were brought down radically in the near future, the population will still increase substantially as the huge pre adult population in the developing world reaches child bearing age and reproduces.

Family planning programs help million of women by providing reproductive health care that saves lives, preventing unintended pregnancies and offering the opportunity for many people worldwide to plan their families using contraception. While fertility levels are falling rapid population growth remains a critical issue in many developing countries, where needs are great but resources are scarce.

Population growth in developing countries can be restricted by establishing some kind of social security system for the elderly, mandating a minimum age for marriage, discouraging people from getting married or having a child in the absence of a steady income, and requiring women to attend a prescribed class on sexuality, health, childbearing, family planning and birth control before marriage. Since the dawn of history, women and men have wanted to be able to decide when and whether to have a child. Contraceptives have been in one form or another for thousands of years throughout human history and even prehistory. In fact, family planning has been widely practiced, even in societies dominated by social, political or religious codes that require people to “be fruitful and multiply” from the era of Pericles in ancient Athens to now.(Pomery, 1975)

Throughout the world, fertility desires and levels are coming down. This requires contraceptive methods to prevent unintended pregnancy. In perhaps one of the history's most dramatic developments, the total fertility rate of the world has dropped from 5 children per women in the early 1950s to 2.6 today. Much of this decline was caused by the increase in the family planning and modern contraceptives use (Bongaarts, 1997), which has been especially dramatic in the developing world.

Today, Sub Saharan Africa is the only region where low levels of contraceptive use and high fertility persist. Nevertheless, nearly half of the pregnancies worldwide are still unintended, and much scope remains for improvement in contraceptive protection. Contraceptive use is the expression of individuals or to limit births. Individual demands for birth spacing and limitation are themselves by the countries suggested that the choice of contraceptive method was influenced by health care policy, the organization of the relevant services and differential provider preferences.

The levels and trends of contraceptive use are influential variables in fertility change, and causal inference about fertility conditions and changes. This must be supported by some empirical knowledge about what cause people to regulate contraception voluntarily by using contraception. Recent studies among surveyed countries have shown that fertility is declining in most developing countries caused by the rise in the level of contraceptives use (UNICEF, 2007).

At the outset of the 1990s, Ethiopia was among the African countries with the highest fertility. During the subsequent decade, the TFR dropped from 6.4 to 5.4 children per women of reproductive age. Early studies of the fertility transition in Sub-Saharan Africa documented significant declines in fertility in Botswana, Kenya, South Africa, and Zimbabwe (Van de Walle and Foster 1990; Caldwell and Caldwell 1993; Cohen 1993); Ethiopia was not considered among the countries at or near the start of the transition to low fertility, however.

Using data from reproductive birth histories collected in 1990 national survey, (Lindstrom and Berhanu, 1999) identified a pattern of moderate but steadily declining fertility in the second half of the 1980s, but they could only speculate as to the long–term progress of this decline. In a national context of high fertility, an unexpected sharp decline in fertility was under way in the capital Addis Ababa. Between 1990 and 2000, the TFR in Addis Ababa dropped by 39%, from 3.1 to 1.9 births per woman. The low fertility in the capital had become even lower, and it is the first time to be under the replacement rate in the history of Africa (Kinfu 2000; CSA and ORC Macro 2001). Moreover, Ethiopia has one of the lowest levels of contraceptives use in the world, with a contraceptive prevalence rate 14.7% (EDHS 2005). In contrast, use of modern methods in Addis Ababa is 45%, Amhara 15.7% and Oromiya 12.9% (CSA & ORC Macro 2005).

Based on the fact as expected, contraceptive prevalence is higher in urban areas than in rural areas (47 %t versus 11 %). There is also substantial variation in current use by region. Current use is highest in Addis Ababa (57%) and lowest in the Somali Region (3%). Urbanized areas like Dire Dawa and Harari also have much higher levels of current use (34% each) than the other regions (EDHS 2005). The CPR in Oromiya and Amhara regions are much lower than the capital city (14% and 16% respectively). “Sub Saharan Africa has been called the most important FP frontier of the twenty first centuries” (Caldwell, 2002). Contraceptive prevalence is far lower in the region overall than in any other world region. Given this situation, AA has a remarkably low TFR for Sub Saharan Africa and compare to 5.2 in Ethiopia generally (EDHS 2005). These contrasting figures are a result of several significant trends in fertility determinant in Ethiopia. Several studies have analyzed EDHS data from 2000 to identify the factors that are most significant to the fertility decline in Addis. In those studies, contraceptive use was found to be a significant factor in decline.

Many studies have been conducted in order to uncover obstacles of family planning acceptance and its continued use. The use of contraceptives and contraceptive services is influenced by a number of factors that either motivate or discourage women to use contraceptives effectively. The aim of this literature review is to identify and describe factors impacting on the contraceptive practices of women.

In Western Europe, studies indicated that the use of a particular contraceptive method was related to characteristics such as age, educational level, socio economic status, marital status parity and religious persuasion (Skjeldstad, 1994). The discussion includes factors impacting positively or negatively on contraceptive practices in terms of age-related issues, education, religion, knowledge about contraceptives.

2.1.1. Age and contraceptive use

Age pattern of fertility decline in population making the transition from natural to controlled levels of fertility suggest that family limitation by married couples is an innovation that is diffused throughout societies (J. Kondel, 1974). Older women with more children were the first to limit fertility in both European and Asian population but other individuals were increasingly likely to adopt this innovative behavior overtime (Van de Walle & Kondel, 1980).

Age has been identified as an important factor that influences contraceptive practices. The fertility of adolescent and young adults is influenced by many of the same proximate determinants that affect the fertility of older women of reproductive age. Studies on different sub Saharan countries showed that age patterns of fertility vary among regions, countries & different groups within countries. It peak extends to age 29 in half of all surveyed countries and women over 40 contribute an average of 0.5 children to the TFR.

A study conducted by the population council in 1996 in Bangladesh, reported that 6% of the unmarried girls had premarital sexual intercourse before intercourse they reach the age of 18 years, compared to 38% of the unmarried boys (Haider et al., 1997). Current use of contraception in nationally study sites is substantially lower among the teenage married women than the older married women of reproductive age (MWRA).

Contraceptive use differs among women's age group. The result of the studies for the past ten years in Bangladesh supported the stated phrase. It is found that the current use of any method declined from 22 % to 16% among the married aged 10-14 years, and has increased from 25% to 33% among the married women aged 15-19 years.

The contraceptive prevalence rate for the married women aged less than 20 years is only 24% compared to the CPR of 44% for the women aged 20-29 years (Mitra et. al., 1994). This indicates that much for the increased contraceptive prevalence is attributable to the higher rates of contraceptive use and FP acceptance among the relatively older, higher parity women. Other study conducted on contraceptive prevalence in Indonesia showed that younger women were more likely to be currently using or have used contraceptive than were older women (Molyneaux, 1999).

Contraception in most countries is of lowest prevalence among young women, reaches a peak among women in their thirties and declines among older women (Robey, 1992; CSA, 2005). According to EDHS 2005 the contraceptive prevalence among currently married women is lower at younger age (15-19) and at older age (45-49). It reaches its peak among women at their late thirties. This may reflect a high desire for child bearing among young women, and a high growing interest of spacing and limiting births among women in their older age.

2.1.2 Women's level of education and contraceptive use

Women's education has a constructive effect on socio economic processes in the developing world (Fallon 1999; Glick and Sahn 1997; Odaga and Henevald 1995). Women's education occupies a unique place in demographic discourse and policy because a large amount of empirical research has revealed that educated women delay marriage use contraceptive, reduce fertility and produce many other beneficial reproductive and child health outcomes.

There is also a common assumption that education leads to autonomy (technical, social and physiological ability to obtain information) as it helps women to stand up to their husband and provides them a forum to learn about fertility control and make effective use of the health care system. Moreover, increased education and the autonomy that comes with it may influence women's reproductive decisions regarding issues such as contraceptive use, as well as their actual and desired fertility.

Education has a positive effect on the use of contraceptive. Female education has been seen as a key determinant of contraceptive use. Better educated women, being more exposed to family planning information are more likely to practice contraceptive than uneducated women. A study conducted by Koc, 2000 revealed that a positive association between the educational level of women and the use of contraceptive methods in Turkey.

The study which was conducted in rural Ghana during the 1980s, which examines whether a woman's interest in fertility regulation and contraception is influenced by the education of other women in her community have shown that net of her own characteristics, a woman interest in limiting fertility and using modern contraception increases with the percent of women with education in her community and it suggested that female education has a greater capacity to introduce novel reproductive ideas and behaviors into rural areas of Africa and thereby transform the demographic landscape the region than is currently believed.

Other theories argue that the education of women in a community changes the institutional setting in ways that reduce the incentive to have many children. Some claim that the education of some women in a community initiates social and ideational changes that undermine traditional patriarchal power and reduce men's interest in having large numbers of children as it becomes difficult for them to devolve the costs of childbearing onto their wives (McNay et al. 2003).

According to the theories, elite educated women develop a heightened awareness and become empowered to adopt those (Johnos- Hanks, 2003). The NFFS (1990) has shown that in Addis Ababa FP use was 32.8% and the use of family planning also increased with the educational level of women. The population of women who use FP method was 2.7%, for those with no education, 4.9% for those with formal education. The 2005 EDHS report showed that contraceptive use differs significantly across educational categories. Current use increases five-fold from 10 percent among women with no education to 53 percent among those with secondary and higher levels of education.

The 1984/85 Pakistan contraceptive prevalence survey showed that urban women were more than twice as likely to be literate than the ruler women. In urban areas, literate women were more

likely than illiterate women to have reached or exceeded the number of children they desired. Women whose fertility was sufficient or excessive were more likely to use contraception presumably to avert future pregnancies. Therefore, greater literacy among urban women explained an important part of the higher contraceptive prevalence among urbanites for averting unwanted conception.

In developing countries surveyed since 1990, contraceptive use is higher among women with more education. Differences in contraceptive use by education are greatest in sub-Saharan Africa, where total contraceptive use is the lowest of any region. Even after taking account of other factors, researchers consistently have found that better educated women are more likely to use contraception.

2.1.3 Religious affiliation

Very little work has been completed specifically on the relation between birth control and religious institutions. Religious affiliations may impact on the use of contraceptives due to differing beliefs regarding birth control. According to Popenoe, Cunningham and Boult (1998) Christian churches had, in the past, generally believed that using birth control are opposing against God's word that people shall multiply and be many and reproduction is one of the primary goals of marriage and, as a result, they were opposed to the use of contraceptives. Now a days there is little to no condemnation of using birth control in most major religions promote fertility because they date back to eras when high fertility rates could mean the difference between the survivals or death of a community.

The study on contraceptive use in Kinshasa by Shapiro (1994) revealed the relationship between religion and contraceptive use. All non Catholic religious groups had slightly higher rates of contraceptive prevalence compared with catholic women. Other study in Sierra Leone by Amin et al (1992) reported that there is low contraceptive prevalence among women who followed Islam religion than among those affiliated with catholic and other Christian religion. The implication of this may connected with the desire of to have more children by those Muslim women.

2.1.4. Employment status and contraceptive use

To obtain FP methods and services may need some costs to pay. It influences the type of methods a woman has used directly or indirectly. A significant proportion of modern method users in Pakistan pay for contraception (Ministry of population Welfare, 1995). Moreover, users of modern methods also have to pay for travel costs and the opportunity cost of time spent in obtaining the method. These costs may become excessive for poor women, who may be unable to afford the use of modern contraception. In contrast users of traditional methods don't have to pay a monetary price, nor are there travel or time costs associated with obtain these methods. If the effect of income on contraceptive use operates through contraceptive price and travel cost, higher household income should increase the likelihood of using a modern method. Moreover, a study conducted in Kinshasa, Zaire has identified that self-employed women and employees had much higher predicted probabilities of contraceptive use and women employed in the modern sector as more likely to practice contraception (David Shapio & B.Oleko Tambasha, 1994). Women's employment is expected to influence the number of children they desire to have and tat the same time it also affects their contraceptive behavior.

2.1.5. Place of residence and contraceptive use

In developing countries, urban population size is growing rapidly. Continued rural-urban migration contributes sizably to this growth, especially since most people who migrate to the cities are young. The rise of women in the labor force, adoption of modern ideas, increased need for child labor, and the breakdown of the extended family contribute to these changes. Factors which decrease fertility are falling proportions of people marrying at an early age, increased age at first marriage, increased spousal separation, and increased use of contraception. Socioeconomic differentials and issues of equity explain, to a certain extent, the high fertility and low contraceptive use in some poor urban areas.

The place of residence has shown to have relationship with the use of contraceptive. A study conducted by Malhotra and Thapa in Sri Lanka (1991) and Rutenberg et'al (1991) found that the

use of contraceptives was higher among urban women than rural women. In the study conducted on developing countries, rates of contraceptive use among married women in rural areas are lower than in urban areas. The exception is Jamaica, where rural and urban levels of use are equal. In surveyed countries of Eastern Europe and Central Asia, differences in contraceptive use between rural and urban areas are quite small. As with differences in contraceptive use by level of education, differences by rural or urban residence vary among countries. In countries where contraceptive use is widespread, rural-urban differences are smaller than where contraceptive prevalence is low.

In many studies it has been found that acceptance and the use of contraception was higher among those who reside in urban than in rural areas. The reason is may be the accessibility and sufficient availability of family planning methods and services and the other possible reason may be that urban women get chance to be educated than rural women and it leads to prefer to have less number of children to maintain the family size based on their economic status.

According to EDHS 2000 in Ethiopia the contraceptive prevalence rate is high in urban areas than rural areas (36% and 4% respectively) and it is less slightly higher in 2005 (47% and 11% respectively).

2.1.6. Ethnic group and Contraceptive use

As in many African countries, ethnic groups in Ethiopia have been distinct for a long time. This long period of exclusiveness, compounded by ethnic competition for political power, has resulted in an increased intensity of ethnic affiliation (Library of Congress 2002).

Some researchers have found that ethnic and religious differences affecting fertility control especially in developing countries. Ethnic groups are a major cultural force in reproduction, however, and different religious affiliations are present within the ethnic groups, providing a context allowing greater understanding of the effects of religion on birth control.

2.1.7. Types of methods and contraceptive use

Young women experience a high risk of unplanned pregnancy and HIV because of their limited knowledge about sexual and reproductive health.

Lack of knowledge and unnecessary myths are the main points that deter people from adopting contraceptive methods. From hormonal contraceptives to barrier methods and natural methods, the types of birth control available today.

Providing the correct information is the key to create the right contraceptive behavior. However, before using a contraceptive, women must first have knowledge of different methods. In Senegal and Burkina Faso, more than 85 percent of young women surveyed knew at least one form of modern contraception, but far fewer (67 percent and 66 percent, respectively) knew three or more modern methods. Knowledge in Senegal was lower, with only 76 percent of young women knowing one method and only 56 percent having knowledge of three or more.

2.1.8 Knowledge about contraceptive

Youth around the world especially young women experience a high risk of unplanned pregnancy because of their limited knowledge about sexual and reproductive health. Knowledge of contraceptives and contraceptive use are important indicators of reproductive health among women.

The available data from the Demographic and Health Surveys (DHS) conducted in three West African countries explored the variation in sexual knowledge and practice among youth women. The article reported on 2009 that in Senegal and Burkina Faso, more than 85 percent of young women surveyed knew at least one form of contraception, but far fewer (67 percent and 66 percent, respectively) knew three or more methods of contraception.

2.3 Unmet need for family planning methods

Currently married women have an unmet need for family planning if they say that they want no more children (unmet need for limiting) or want to wait at least two years before having another child (unmet need for spacing) but are not using contraception (CSA and ORC Macro, 2001). Many married women in developing countries have unmet need for spacing or limiting (Robey et al., 1996). On average, the level of total unmet need for contraception in sub-Saharan Africa is more than 20 percent. In some countries this is even higher with one in three women having an unmet need (30 percent in Malawi and 37 percent in Rwanda).

Ethiopia is one of the countries with a high level of unmet need. The 2000 and 2005 Ethiopia Demographic and Health Survey indicate that the unmet need for family planning among currently married Ethiopian women is 36 percent and 34 percent respectively (CSA and ORC Macro, 2001 and 2006).

According to the BDHS 1996-1997, the unmet need for FP services highest among the 10-14 and 15-19 years age groups of married women, at 22% and 19 % respectively. The vast majority of this unmet need for FP service was for spacing purposes. For the other age groups, beginning from 25-29 year the total unmet need for FP (for spacing and limiting) ranged from 5 to 18%.

Factors contributing to unmet need include lack of access to contraceptive services, lack of knowledge about contraceptives or misinformation such as fear of side effects and myths about modern contraception, and social disapproval (Levine et al. 2006; Casterline and Sinding 2000). In 2003, it was estimated that 122.7 million women in developing countries had an unmet need for contraception, with the highest need percentage in Sub-Saharan Africa where it exceeded the percentage of women currently using contraception (Levine et al. 2006). Globally, an estimated 137 million women have an unmet need for contraception (Gill, et al. 2007).

A study conducted in Kenya has shown that unmet need among couples seemed to decline with increasing education (Omwago and Khasakhala, 2006) This study further stated that couple who

are more educated can afford to buy contraceptives, are more likely to reside in the urban areas where contraceptives are more accessible, are more informed about the available methods and are more likely to prefer small families than their less educated counterparts. As a result, those with no education had the greatest unmet need.

From different studies as we can see there are a number of factors that influenced the demand and use of family planning methods among women. As is the case for many other socio demographic variables, unmet need showed a uniform decline among all ethnic groups in Ethiopia (EDHS 2005). Oromo women and those who belong to other ethnic groups reported relatively higher unmet need for contraception (77 percent and 76 percent, respectively) than Amharas (57 percent).

A study conducted by Mekides (2003), in Amhara regional state using the 2000 Ethiopian DHS suggested that among women with no formal education and who have demand for contraception, 89% have unmet need and among those with secondary or higher education and who have demand for contraception, only 19.2% have unmet need for contraception. Omwago and Khasakhala (2006) in their study indicated that couples who have more children are more likely to have unmet need than the ones who have fewer children or none at all.

To sum up, many of the previous studies found that there are many demographic, socio economic determinants factors influences the use of contraceptive among women. Those factors are women's education, occupation, age at first marriage, employment status, residential place and exposure to mass media and etc. According to the literature reviewed and the constructed hypothese analysis of this study would give the determinant factors which affect the use of contraceptive among currently married women in Amhara and Oromiya region of Ethiopia.

CHAPTER THREE

DATA AND METHODOLOGY

3.1 Introduction

This study used secondary data which is conducted on 2005 by CSA. This chapter will review the methodology employed to address the aim of the study. The chapter is divided into eight sections. The first section describes the source of data used. The second and the third sections describe the procedures and methods used in this study for carrying out quantitative analysis. Section four enlightens the variables and their definition used in this study. The next three sections describe the list of different tables which will construct on chapter four.

3.2 Source of data

The study is based on the analysis of secondary data obtained from 2005 Ethiopian Demographic and Health Surveys (EDHS) and it is used to complement the quantitative results. The survey is nationally representative and has been implemented to allow analysis for Ethiopia as a whole and separately by rural-urban areas and by its regions. The 2005 EDHS is latest and the second national large scale dataset on demographic and health information. The sampling design used in the survey was stratified, clustered and selected in two stages random sampling technique to ensure that the sample is representative of the entire population of the study area.

3.2.1 Data

The EDHS was a nationwide sample survey of women of reproductive age15-49 and men of age 15-59 designed to provide information on three different groups of questionnaires. The first questionnaire recorded information on all household members. The second questionnaire recorded detailed information on eligible women who were identified using the individual questionnaire. The third questionnaires recorded on all men age 15-59 living in the household. It was collected information in shorter, but much of the same information in women's

questionnaire except a detailed reproductive history. The 2005 EDHS was carried out under the aegis of the Ministry of Health and was implemented by the Central Statistical Agency (CSA) incorporated with the international macro organization (ORC). Both 2000 and 2005 EDHS surveys used the same type of questionnaires used and employed the same methodology. The questionnaire collected information mainly on

- **Socio economic and demographic data**, including age, religion, level of education, husband's occupation, woman's working status and current marital status;
- **Reproductive history**, including age at marriage, number of pregnancies, deliveries and miscarriages; history of child death; number of living children, children ever born and sex of surviving children, woman's ideal preference regarding number of children;
- **Use of contraceptive methods**, both current and ever use; inquiry was made into the use of modern contraception following each pregnancy (which represents a segment of contraception use), type of method used, duration of use and reason for discontinuation.

For this study, individual data will be used to achieve the objectives. Information obtained in the individual women's questionnaire provides data on the socio economic and demographic characteristics of currently married women for the analysis.

3.2.2 Target population

A total of 14,645 households were selected, of which 13,928 were occupied. The total numbers of households 13,721 were interviewed yielding a household response rate of 99 percent. In each selected household, 15-49 years old married women were asked to participate in an interview. Interviews were conducted between April 27 and August 30 2005 by specially selected and trained female interviewers.

Nationally a total of 14,717 eligible women which means age 15-49 were identified in these households and interviews were completed for 14,070 women. As this study focuses on the two regions, therefore, have a sample of 4,173 women, of which 2730 are currently married and out of which 47% are from Amhara region and 53% are from Oromiya region. The response is higher in rural areas than urban areas.

Table 3.1 Results of the individual and currently married women interviews

Number of individual eligible women and currently married women interviewed and response rates, according to region and residence, [EDHS , 2005]			
Result	Urban	Rural	Total
Eligible women response rate	94.4	96.2	95.6
Interviews with eligible women			
Country level	4,423	9,647	14,070
Amhara	234	1709	1943
Oromiya	319	1911	2230
Interviews with currently married women by region			
Country level	1626	6812	8438
Amahra region	134	1148	1282
Oromiya region	120	1320	1448

The above table presents information on the number of eligible women and currently married women were identified and interviewed at the time of the survey. It also provides the response rates individual respondents nationally and the selected study regions.

3.3 Method of Quantitative Data analysis

A cross-sectional, descriptive and comparative study using the quantitative research method is chosen to address the research question. Bivariate and multivariate analysis are also undertaken to study the relationship of a set of explanatory (independent) variables with contraceptive use and unmet need for FP. To establish or to determine a relationship or association between variables and see which variables are most affect the dependent variables according to the developed hypotheses, the goodness of fit of Pearson's chi square method were used. The data will then be analyzed using Statistical Packages for Social Sciences (SPSS) 16.0 version.

In this analysis the use of contraception and unmet need will be used as the dependent variable of interest and age, education, religion, ethnicity, etc as independent variables. Note that both the dependent variables have two categories which are use and non-use for contraceptive use and unmet need for FP and met need for FP. All the predictors are categorical variables. Once the factors affecting the dependent variables are identified using bivariate analysis, logistic regression will be employed to determine the relative importance of these factors. Logistic regression is therefore used to predict a categorical variable from a set of predictor variables.

3.3.1 Logistics Regression Analysis

There are different types of multivariate statistical techniques that can be used to predict a binary dependent variable from a set of independent variables. Least-squares method is not the best way of estimating parameters of logistic regression model. One problem with this model is that the probability of πi in equation (1) has to be between zero and one, but the linear predictor $Xi\beta i$ can take any real value, so there is no guarantee that the predicted values will be in the correct range unless complex restrictions are imposed on the coefficients. Instead this study uses the ML ratio test statistics to finds values of parameters that have greatest probability on the predictors. The ML ratio test statistic is more powerful and reliable for sample of sizes used in practice (Agresti, 1996).

The linear regression model can be expressed as

$$\pi i = Xi\beta i \qquad (1)$$

For a binary response Yj and quantitative explanatory variable Xij, i= 1,2,…,m and j=1,2,…,n.

Let $\pi j = P(Xij)$ denote the ‘’success probability’’ when Xij takes the values xij. To remove the range restrictions the easiest way is to transform the probability and model the transformation as a linear function of the covariates. Therefore, logistic regression is used to analyze the dependence of a binary response variable **y** on a set of **K** independent explanatory variables and applied the logit transformation where the transformed quantity $\text{Ln}(\pi j/(1-\pi j))$ lies in the interval $(-\infty,\infty)$ and the general model will be

$$\textbf{Logit } (\pi j) = \ln = \beta_0 + \beta_1 X1 + \beta_2 X2 + \ldots + \beta_k Xk \qquad (2)$$

This implies $\pi = \frac{\exp(\beta 0 + \beta 1X1 + \beta 2X2 + \ldots + \beta kXk)}{1 + exp(\beta 0 + \beta 1X1 + \beta 2X2 + \ldots + \beta kXk)}$ **(3)**

Where the parameter β_k determines the rate of increase or decrease of Xij on the log of odds that Yj=1, controlling for other X's. Furthermore, exp (βi) is the multiplicative effect on the odds of unit increase in Xij, at fixed levels of the others X's, P_i is the predicted probability of occurrence (y_i=1) for the i^{th} observation (i=1..,N), 1-P_i is the probability of nonoccurrence (y_i =0), β is a (*K*+1) column vector of unknown parameters to be estimated including the intercept term, Xi is a (K+1) row vector of explanatory variables accounting for the ith observation.

The odds ratio is defined as the ratio of the probability of occurrence over the probability of non occurrence. The coefficient βj estimated by the logistic regression models the single effect of the ***j***-th explanatory variable on the response variable.

A value β = 0 is equivalent to exp (β) = 1 and to *Pi* = *Pj* , i.e., the independent variable has no effect on the probability of contraceptive use and unmet need for family planning. A value β > 0 implies that the dependent variables becomes more likely as the independent variable increases; β < 0 implies that the dependent variables then becomes less likely.

Maximum likelihood estimation is used for estimating the parameters in the logistic regression model. The likelihood L is maximized in order to achieve better estimates. The higher the maximized value of L the better will be the fit of the model. This is assessed on a log scale by computing -2logL, called -2LL. When there are several explanatory variables, different models can be assessed using -2LL as a figure-of-merit.

A better, but computationally more intensive criterion for determining variables to be removed from the model is the likelihood-ratio (LR) test and foreword stepwise is used to select those

variables which best explain the data. It starts with a model that contains only the constant. At each step, the variable with the smallest significance level for the score statistic, provided it is less than the chosen value, 0.05 is interred into the model.

In the case of this study current use of contraceptive takes a value of one if the respondent reported use and zero if otherwise and total unmet need takes the value of one if the woman have unmet need and zero if otherwise (met need). The reference category of each measured independent variable has a value of one and the values for other categories are compared to that of the reference category. A value less than one imply that individuals in that category have a lower probability of reporting current use and unmet need for contraceptives than individuals in the reference category.

A number of socio-economic, demographic and family planning variables will be used for the log-linear model fitting and analyzing in order to examine the factors affecting the contraceptive use and unmet need in the regions. The regression models are also estimated separately for the Amhara and Oromiya regions to see if the factors determining contraceptive use and unmet need are basically similar or different in the two regions setting.

Models to be fitted

1. Examine the determinants of the current contraceptive use regionally and overall.
2. Examine the determinants of ever use of contraceptive among currently married women of the region and overall.
3. Further analysis the factors that contribute on women's unmet need for family planning.

3.4 Operational definition and description of variables

The explanatory variables to be included in this study are selected by reviewing the available related literatures. The response variables are current use and unmet need for family planning methods. Current use of contraceptive is the use of any traditional and modern contraceptive methods reported by the women on the time of the survey and unmet need for family planning is refers to women who either want to wait at least two years before having their next birth (unmet

need for spacing) or stop childbearing entirely (unmet need for limiting) but are not using contraception.

Taking into account theoretical considerations as well as the results from a series of exploratory models, independent variables considered in the analysis are stated below with their definitions.

3.4.1 Dependent variables

- **Contraception: -** It is the act of preventing pregnancy when sexually active.
- **Contraceptive use**: - It is one of the important determinants of fertility control. This variable measured in this analysis is the current use of contraceptive methods either for coded 1 for current use and 0 otherwise.
- **Non users of contraceptives:** - refers to women who are not using any methods to delay or preventing pregnancy.
- **Unmet need**: - it is the percentage of women who either want to space their next birth or stop childbearing entirely but are not using contraception. Currently married women have an unmet need for family planning if they say that they want no more children (unmet need for limiting) or want to wait at least two years before having another child (unmet need for spacing) but are not using contraception.
- **Space** refers to those currently married women who want to space births the number of children and are using contraceptive methods to avoid unwanted or mistimed pregnancies
- **Limiting** refers to those currently married women who want to limit the number of children and are using contraceptive methods to avoid unwanted or mistimed pregnancies.

3.4.2 Independent variables

Independent variables are grouped into three categories. These are demographic variables, socio economic variables, and the family planning variables that have been shown in earlier studies to be influential in contraceptive use. These are

3.4.2.1Demographic variables

- **Age: -** respondents in 5 year categories as 1= 15-19, 2=20-24, 3=25-29, 4=30-34, 5=35-39, 6=40-44, 7=45-49

- **Age at first marriage: -** the age at which marriage begins is an indicator of the beginning of exposure to the risk of pregnancy, is highly correlated with life time fertility.

- **Number of living Children: -** the total number of living children the respondent had. It is a discrete variable coded 0 if the respondents do not have a child during the survey.

- **Number of ever born children: -** the total number of children a woman gave birth in her life time until the time of the survey. It is a discrete variable

- **Ideal number of children:** - it is a measure of the reproductive norms in the population and provides quantitative basis for assessing trends in the number of children desired. All currently married women were asked how many children they would like, if they could choose.

- **Fertility preference: -** it is a measure of choosing child in the future. It is a categorical variable classified into five categories. 1 for have another one, 2 for undecided, 3 for no more children, 4 for sterilized, 5 for declared infecund.

3.4.2.2 Socio economic variables

- **Ethnicity: -** Since Ethiopia is a diversity country it is coded as country specific into 93 categories.

- **Religion: -** This variable is categorized into six category 1 for Orthodox =1, 2= Catholic, 3 for Protestant, 4 for Muslim, 5 for traditional and 6 for others religion.

- **Place of Residence: -** It is a categorical variable with a limited number of outcomes. It is categorized as 'urban' and 'rural' as a reference category to see how much urban exposure is important in differentiating contraceptive use among women.

- **Educational level of women: -** Highest education level attended. It is one of the main factor influencing fertility and health care. It is a standardized variable providing level of education in the following categories: code '0' for No education or illiterate, code '1' for primary, code '2' for Secondary and code '3' for Higher.

- **Employment status: -** It is whether a woman employed to get money for improve her and her family's life. It is categorical variable coded into two categories. 0 for no and 1 for yes.

- **Exposure to mass media:** -this variable is used to identify the extent to which mass media exposure affects women's current use of contraception and to observe if any media exposure affects the use. It is therefore categorized as follows 0 for not at all and 1 for yes.

3.4.2.3 FP knowledge, attitude and Practice variables

- **FP knowledge: -** Acquiring knowledge about family planning is an important step towards gaining access to and using a suitable contraceptive method in a timely and effective manner. It is a categorical variable coded as 1 for knows no method 2 for knows only traditional method and 3 for knows modern method.

- **Decision making for using contraceptives: -** It is asked of women who are currently using contraceptive and it is used to determine whether a woman participated in the decision to use contraceptive which would indicate she is exercising her right to control her reproductive health and fulfill her fertility desire. It is a categorical variable and coded as 1 for mainly respondents, 2 for mainly husband and 3 for joint decision.

- **Main reason not currently using contraceptive method**: - it is used to determine why women are not using a contraceptive method despite their reproductive intention to terminate child bearing or delay the next pregnancy.

- **Intention to use contraception**: - women who are not using a method are asked whether they intend to use one in the future. It is used to predictive future use of contraceptive.

3.4.3 Description of variables

The variable descriptions provide additional background information relating to some selected variables. It is used when analyzing the logistic regression model.

- **Women's current age: -** age of currently married women of age 15-49. It is categorized as 15-19, 20-24, 25-29, 30-34, 35-39, 40-44 and 45-49. *Age group 15-19* is a reference category.
- **Number of living children: -** ranging from 0-12 and categorized into; 0= no children, 1= 1-4 number of living children, 2= 5-8 number of living children, 3=9 and more number of living children, *9 and more living children* is a reference category.

- **Ideal number of children: -** ranging from 0-6 and categorized as 0= no children, 1= 1-5 ideal numbers of children, 2 for 6 and above ideal number of children and 3 is for non numeric response and the reference category will be *6 and above ideal numbers of children.*

- **Fertility preference: -** It is a categorical variable classified into three categories. 1 for have another one, 2 for no more children, 3 for others and the reference category will be *no more children*.

- **Ethnicity: -** it is categorized into 1= Amhara, 2= Oromo and 3= others. The reference category is *other ethnic groups*.

- **Religion: -** it is categorized into 1= Orthodox, 2= Muslim, 3=other religions. The reference category is *other religions***.**

- **Women's education: -** refers to the highest level that a woman has completed. It is categorized as 0= no formal education, 1= primary education, 2= secondary education, 4= higher education and *no education* is taken as a reference category.

- **Type of place of residence: -** refers to the place where a woman lives at the time of the survey. It is categorized into 1= urban, 2= rural and the reference category is *rural***.**

- **Employment status: -** refers to the current work status of currently married women and it is categorized in two categories. 1 for women who are currently working and 2 for women who are not currently working and the reference category is *those who do not work.*
- **Knowledge of any method** indicating whether the individual knows any contraceptive methods or not. It is categorized as 0 for knows no method and 1 for knows any method. The reference category is *knows no method.*

- **Mass media exposure: -** indicating whether or not the individual has heard a message concerning family planning on either the radio or the television in the last month. The reference category will be *no exposure to any mass media*.

3.5 Scope of the study

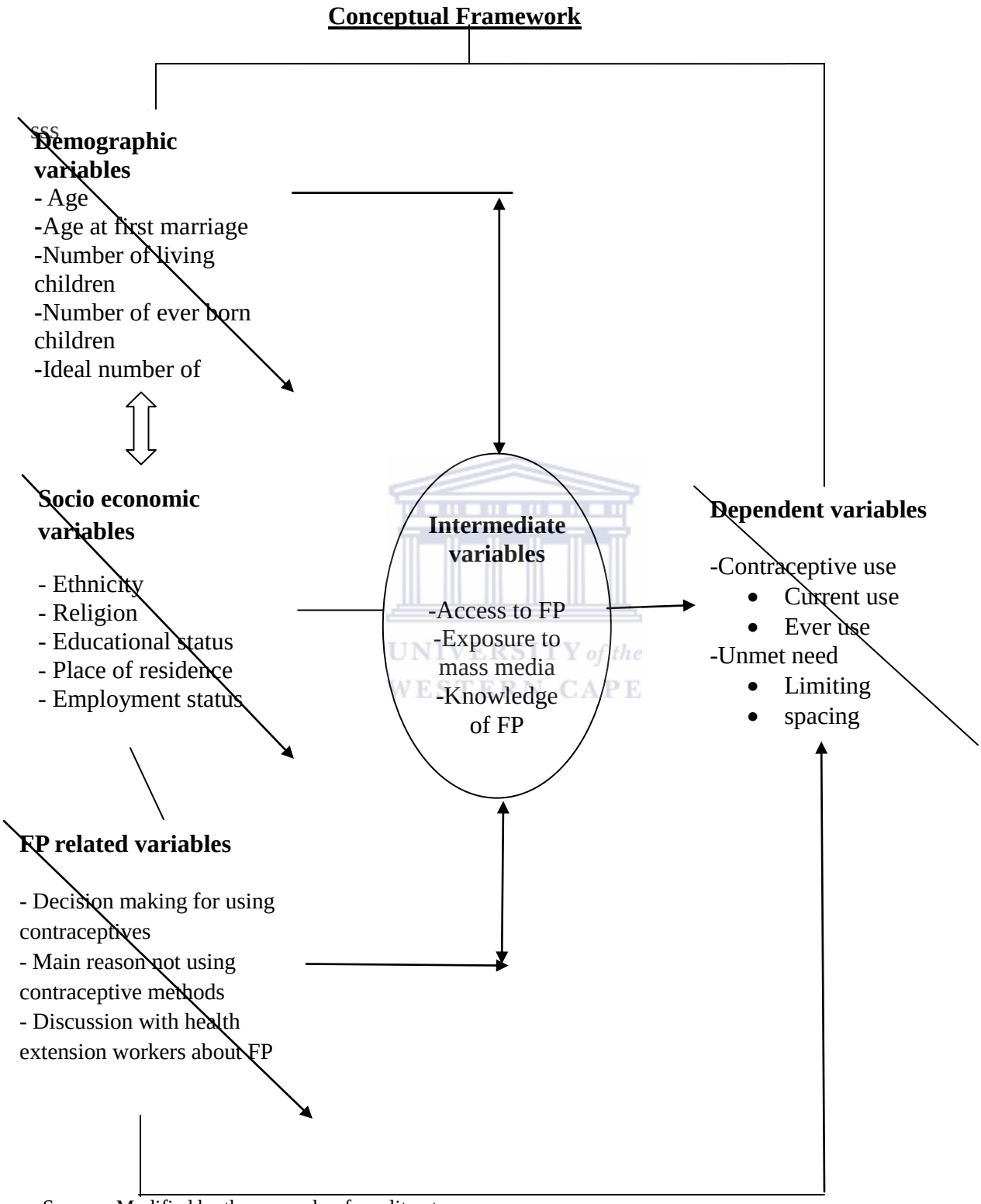
There have been numerous research endeavors on factors associated with the use of family planning methods. However, such studies are limited in these regions and Ethiopia as a whole. The study will investigate the demographic and socio economic factors that affect the use of current contraceptive and ever use of contraceptive among currently married women as well as the knowledge and attitudes, influencing use of family planning. Beside that it also concentrates on factors that contribute on women's unmet need for family planning. It is hoped that this study will contribute to the improvement of family planning usage among currently women to limit

their family size according to their life standard and the services in these regions and the country also through appropriate service delivery approaches.

3.6 Conceptual frame work

Based on the review of the literature and objectives of the study the conceptual framework was developed by the researcher. The framework is conceptualized by using two groups of variables, i.e., the dependent and independent variables. The socio economic, demographic and family planning factors have been included in the frame as independent variables while the contraceptive use and unmet need for contraception are considered as dependent variables. Those independent factors as stated on Fig 3 are expected to contribute some effect on women's use of contraception.

Fig 3 conceptual frame work



Source: Modified by the researcher from literatures

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter classified into three sections. The first section represents one part of the descriptive (cross tabulation) analysis on demographic and socio economic characteristics of the selected women for the two regions. The second section will focus on the analysis involved the assessment of the pattern of association between the dependent and independent variables. The last section will discuss about the analysis involved the use of logistic regression model to examine the patterns of association between the dependent and independent variables.

4.2 Descriptive analysis of Demographic characteristics

Two thousand and seven hundred thirty currently married women are included in this study. The mean age of the women is 30.65.

Table 4.1 Percentage distribution of demographic characteristics of women of age 15-49, 2005

Demographic variable	Amhara region		Oromiya region		Over all
	No	%	No	%	
Current age group					
15-19	138	10.8	114	7.9	252(9.2)
20-24	225	17.6	259	17.9	484(17.7)
25-29	226	20.7	326	22.5	592(21.7)
30-34	188	14.7	247	17.1	435(15.9)
35-39	192	15.0	211	14.6	403(14.8)
40-44	142	11.1	144	9.9	286(10.5)
45-49	131	10.2	147	10.2	278(10.2)
Total	1282	47.0	1448	53.0	2730
Mean age	**30.57**		**30.71**		**30.65**
Age at first marriage					
<= 9	11	0.9	3	0.2	14(0.5)
10-14	722	60.2	75	25.9	1147(42.0)
15-19	446	34.8	804	55.5	1250(45.8)
20-24	43	3.4	218	15.1	261(9.6)
25-29	7	0.5	39	2.7	46(1.7)

30+	3	0.2	9	0.6	12(0.4)
Mean age at first marriage	14		17		15
Number of ever born children					
None	111	8.7	93	6.4	204(7.5)
1-4	641	50.0	707	48.8	1348(49.3)
5-9	463	36.2	561	38.8	1024(37.6)
10+	67	5.3	87	6.1	154(5.6)
Total	1282		1448		2730(100.0)
Number of living children					
None	134	10.5	114	7.9	248(9.1)
1-4	758	59.1	821	55.4	1579(57.8)
5-9	376	29.3	486	33.5	862(31.5)
10^{+}	14	1.1	27	1.9	41(1.5)
Total	1282		1448		2730(100.0)
Ideal Number of children					
None					
1-5	151	11.8	152	10.5	303(11.1)
6+	589	45.9	638	44.1	1227(44.9)
Non numeric response	427	33.3	432	29.8	859(31.5)
Mean ideal number of children	115 **4.38**	9.0	226 **4.55**	15.6	341(12.5) **4.47**
Fertility preferences					
Have another one	638	49.8	721	49.8	1359(49.8)
Undecided	12	0.9	11	0.8	23(0.8)
No more child	604	47.1	682	47.1	1286(47.1)
Sterilized	1	0.1	4	0.3	5(0.2)
Declared infecund	27	2.1	30	2.1	57(2.1)

The demographic features of the women are given in Table 4.1. In Amhara region 49.1% of women were below 30 and 48.3% of the women in Oromiya region were below age 30. According to table 4.1, the proportion of respondents showed an increasing trend across age, starting form 9.2 percent in the age group 15-19 to 10.5 percent in the age group 44-49 and is the same pattern to the regions as well. The mean ages to Amhara and Oromiya were 30.57 and 30.71 respectively.

Table 4.1 also reveals us the percentage of women who have married by specific exact ages. Among women in Amhara, 34.8 percent got married at age 15-19 and 55.5 percent of women in Oromiya region got married at age 15-19. Almost 95 percent of Amhara women and 82 percent of women in Oromiya region got married when they were less than 19 years old. The mean age at first marriage in Amhara was 14 years old and in Oromiya it was17 years old. Marriage occurs

relatively early in these regions as well as in Ethiopia. The total mean age at first marriage was only 15.

Fig. 4 Age distribution by region

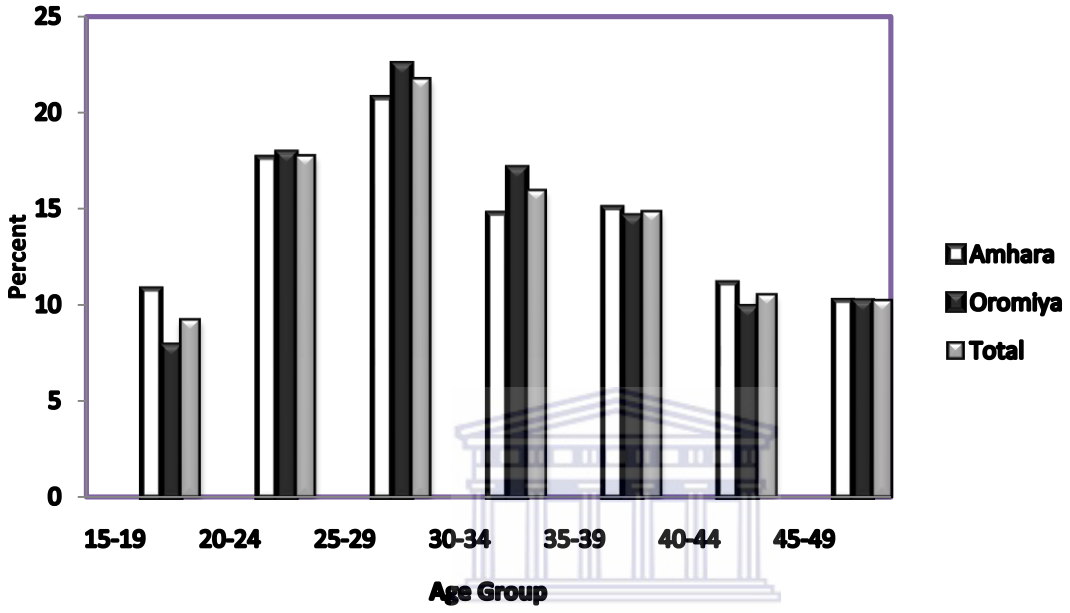
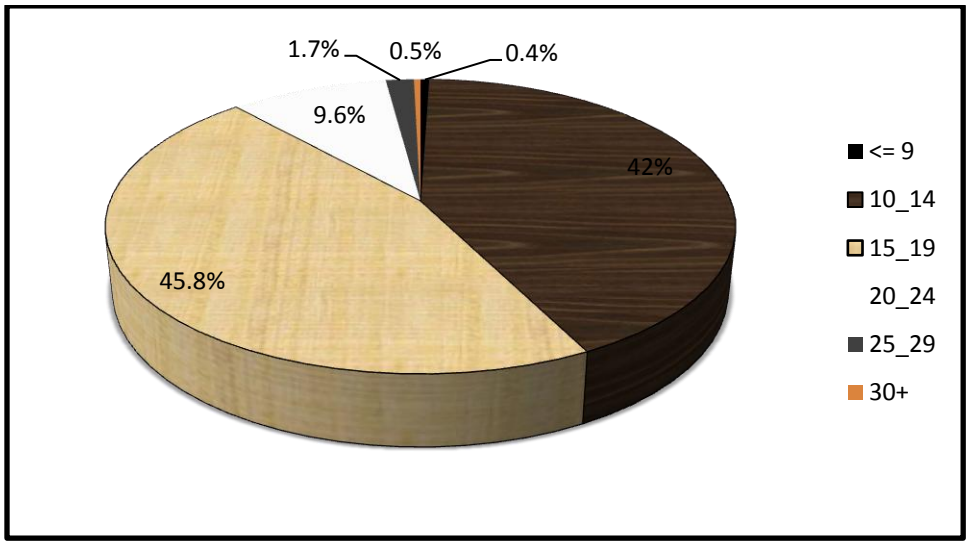


Figure 4 shows the distribution of currently married women by five-year age group and by region. It is clearly shows that the age distribution of currently married women was increased in age group 20-29 for both regions and keeps going to decrease until age group 45-49. The minimum percentage age group 15-19 of currently married women is higher in Amhara region than Oromiya region however; the percentage of the maximum age group which is 44-49 is the same for both regions.

Fig 5 Overall percentage distribution of age at first marriage



From the above pie chart one can see that 45.8% of the women are first married at the age between 15 and 19 and 42% of them married when their age is 10-14. It revealed that almost 88% of them got married at their early age.

Total number of ever born children is a measure of women's previous experience of child bearing and indicators of demands already placed on household's resources. A larger proportion of the women had between one and four children (59%) in Amhara region and 48.8% in Oromiya and 49.3% as overall, with only 8.7% and 6.4% having no children at the time of the survey for Amhara and Oromiya regions respectively. Only 5.6% of them had 10 and more children.

The percentage of living children is decreased in some percent for the number of children 5-9 and 10 and above indicating that some of their children are dead due to different reasons in both regions and the percentage of having no children is increased since some women lost their children by death. In general those who had 5-9 children are 29.3% in Amhara and 33.5% in Oromiya. Those who had no children are 9.1% as a total and 10.5% and 7.9% in Amhara and Oromiya regions respectively.

Women reported not desiring children are less in Oromiya region (10.5 %) than in Amhara region (11.8%). 46% for Amhara and 44.1% for Oromiya desired to have 1-5 numbers of

children and 12.5% of them reported none numeric responses like having a child is beyond their ability.

The overall sampled currently married women report an ideal family size of 4.47 children, while Amhara region report 4.38 children as the ideal number and Oromiya is also reported as 4.55 children.

Forty-seven percent of currently married women in Amhara region and Oromiya region want no more children. Almost 50% of women in Amhara and Oromiya region want to have another child, while 0.9 percent of currently married women in Amhara and 0.8 % in Oromiya regions declared that they didn't decide yet. Two percent of currently married women in Amhara and Oromiya regions also declared that they are infecund.

4.3 Descriptive analysis of the socio-economic characteristics

The socio economic background characteristics of all respondents as presented in Table 4.2 the educational level shows that 14.3% attained primary, 4.1% attained secondary and only 0.6% attained higher school level and 81% with having no formal education**.** The table reveals that regionally more than two third of the sampled women had no formal education. Only 14.7% of Amhara region attained formal education and 22.8% of Oromiya region attained formal education.

Table 4.2 Percent Distributions of socio economic factors for selected women by region, 2005

Socio-economic variables	**Amhara region**		**Oromiya region**		**Total**
	N^O	%	N^O	%	
Educational level					
No education	1094	85.3	1118	77.2	2212(81)
Primary	137	10.7	253	17.5	390(14.3)
Secondary	41	3.2	71	4.9	112(4.1)
Higher	10	0.8	6	0.4	16(0.6)
Total	1282		1448		
Religion affiliation					
Orthodox	1074	83.8	434	30	1508(55.2)
Catholic	0	-	23	1.6	23(0.8)
Protestant	2	0.2	224	15.5	226(8.3)
Moslem	203	15.8	723	49.9	926(33.9)

Traditional	2	0.2	33	2.3	35(1.3)
Others	1	0.1	11	0.8	12(0.4)
Total	1282		1448		
Place of residence					
Urban	134	10.5	120	8.3	254(9.3)
Rural	1148	89.5	1328	91.7	2476(90.7)
Total	1282		1448		
Ethnic group					
Amhara	1217	95.1	138	9.5	1335(49.7)
Oromo	28	2.2	1231	85.1	1259(46.2)
Others	35	2.7	77	5.4	132(4.1)
Total	1280		1446		2726
Employment status					
No	983	76.7	1011	69.8	1994(73.0)
yes	299	23.3	437	30.2	736(27.0)
Total	1282		1448		2730(100)
Exposure to mass media					
Not at all	881	68.7	799	55.3	1689(61.6)
Yes	401	31.3	647	44.7	1048(38.4)

Note: Some of the frequency figures do not add up to 2730 because of missing values

More than half of the women were Orthodox Christian. However, in Oromiya region the majority were Muslim which covered the 49.9% of the total sampled women and 83.8% of Amhara women were followed Orthodox religion. In addition to this Protestant, Catholic and other religions covered the rest of the sampled women.

The majority of the women (90.7%) were rural residents as well as approximately 89.5% and 91.7% of them dwell in rural Amhara and Oromiya region respectively. Only 9.3% of the overall sampled were lived in urban areas. Almost 95% of the women dwelled in Amhara region come from Amhara ethnic group. Likewise the majority ethnic group in Oromiya region is Oromo which was 85% of the total distribution. Generally more than 95% of the overall sampled women were come from the two most dominant ethnicities.

Seventy seven percent of currently married women in Amhara region were not currently working and it was less in Oromiya. Only 31.3% of women were currently working in Amhara region while 44.7% of currently married women were currently working in Oromiya region.

Table 4.2 reveals that more than half of total currently married women were far from information. Since almost 92% of women were from rural areas, and it is expected that rural areas have less access to media than urban. Sixty nine percent of women from Amhara region were not exposed to mass media and 55% of women of Oromiya region were also not exposed to any mass media. From overall women only 38.4% of them were not exposed to mass media. 31.3% and 44.7% of currently married women of Amhara and Oromiya regions respectively were exposed to any mass media.

4.4 Descriptive analysis of family planning service related characteristics

Knowledge of contraception is simply a respondent has heard of it, but it does not mean respondent use it. Knowledge of contraception is simply a respondent has heard of it, but it does not mean that respondent use it. Generally knowledge of family planning among currently married women in Ethiopia was very high (88%); (EDHS 2005). Various studies have shown that the majority of women know about commonly used contraceptive methods such as pills, injection, condom, but that some of them, despite having knowledge about contraceptives, still had unintended pregnancies and terminated such pregnancies (Maja & Ehliers,2004; Mbokane & Ehlers, 2006; Myburgh, Gmeiner & Van Wyk, 2001).

Exactly 89.5 % of currently married women of Amhara region and 94.8% of Oromiya region knew at least one method of family planning in despite of this the current use of contraceptive and the knowledge of the source of contraception among currently married women of the regions was very small. This could suggest that they might not have been adequately informed to prevent unplanned and unwanted pregnancies.

Table 4.3 Percentage distribution of Family Planning service related variables by region, 2005

Family planning variables	Amhara		Oromiya		Total
	N^{o}	%	N^{o}	%	
Knowledge of contraception					
Knows no method	134	10.5	76	5.2	210(7.7)
Knows only traditional method	0	0.0	1	0.1	1(0.0)
Knows modern method	1148	89.5	1371	94.7	2519(92.3)
Knowledge any source of family planning					
No	676	62.8	798	64.1	1474(63.5)
Yes	401	37.2	447	35.9	848(36.5)
Decision maker for using contraception					
Mainly respondents	37	19.7	24	13	61(16.4)
Mainly husband	6	3.2	10	5.4	16(4.3)
Joint decision	145	77.1	151	81.6	296(79.4)
Discussion with health workers					
No	1169	91.2	1337	92.4	2506(91.8)
Yes	113	8.8	110	7.6	223(8.2)
Heard about FP from					
Not heard	1008	78.6	998	998	2006(73.5)
yes	274	21.4	449	449	723(26.5)

Note: Some of the frequency figures do not add up to 2730 because of missing values

Besides, 36.5% of the total sampled women have known the source of any method of family planning but more than half did not know the source of any contraceptive methods. It is also the same for both regions that more than half of them did not know where they can find any family planning methods.

The above table indicates that 77.1% of women in Amhara and 81.6% of women in Oromiya regions decided to use contraceptive together with their husbands. Only 4.3% of them the decision of using contraceptives were made by their husbands

Table 4.3 also indicates that 91 percent of currently married women in Amhara region said that they did not discuss about FP with health worker and only 9% of them discussed about FP with health workers similarly discussion about FP with health worker in Oromiya region was low (8.2 percent). Almost 79 % of currently married women in Amhara region had not heard about contraceptives from any mass media whereas 21% of them had heard about any FP methods from different Media. Heard about FP is somewhat higher in Oromiya region which was 31% and those women who had not heard about FP is about 69%.

4.5 Descriptive analysis of Respondent's Practice on Contraception

Table 4.4 shows that 86.4% currently married women in Amhara region had never used any method in their life time and 86.3% of them in Oromiya had never used any method as well. Only 13.7% of the total sampled women ever used any method of contraceptives. However, 85.4% of them knew at least one method in Amhara region and slightly higher in Oromiya region which was 92.7%. Fifteen percent of women had not known any method in Amhara and 7.3% in Oromiya region.

Table 4.4 Percentage distribution of currently married women by use contraceptive methods and by region, 2005

Respondent's practice	**Amhara**		**Oromiya**		**Total**
	No	%	No	%	
Ever use any method					
Never used	929	72.5	1127	77.8	2056(75.3)
Used only traditional method	5	0.4	12	0.8	17(0.6)
Used only modern method	348	27.1	309	21.3	657(24.1)
Current use by method type					
No method	1084	84.6	1252	86.5	2336(85.6)
Traditional method	4	0.3	10	0.7	14(0.5)
Modern method	194	15.1	186	12.8	380(13.9)
Current contraceptive use by method					
Not using	1084	84.6	1252	86.5	2336(85.6)
Pill	42	3.3	49	3.4	91(3.3)
IUD	2	0.2	3	0.2	5(0.2)
Injection	147	11.5	125	8.6	272(10.0)
Condom	1	0.1	0	0.0	1(0.0)
Female sterilization	1	0.1	4	0.3	5(0.2)
Periodic	3	0.2	5	0.3	8(0.3)

Withdrawal	1	0.1	5	0.3	6(0.2)
Norplant	1	0.1	1	0.1	2(0.1)
Lactational amenorrhea	0	0.0	4	0.3	4(0.1)

Note: Some of the frequency figures do not add up to 2730 because of missing values

From overall women of reproductive-age who had practice of contraception, (10.0%) were used injection method, (3.3%) were used pill, (0.3%) were used periodic method and IUD and female sterilization 0.2%. The remaining women were relying on Norplant and lactational amenorrhea. 85.6% of currently married women of age 15-49 were not using family planning method at all.

In Amhara region the leading methods which practiced by those women were Injection (11.5%) followed by Pill (3.3%) and similarly in Oromiya region the leading methods were also Injection (8.6%) followed by Pill which was 3.4%. The remaining women were relied on female sterilization, periodic, withdrawal and lactaional amenorrhea each covers only 0.3%. Eighty seven percent of women were not using contraceptives at all.

Subfecund or infecund (22.4 %in Amhara region) and (12% in Oromiya region) was one of the main reasons for not using family planning method. If overall sampled women, health concern (12.4%) was the main reason for not using contraceptives. In Amhara region husband opposed only 3% and respondents opposed (4%) in Oromiya region were the least reasons for not using contraceptive methods.

Fig. 6 Current contraceptive use of currently married women by regions, 2005

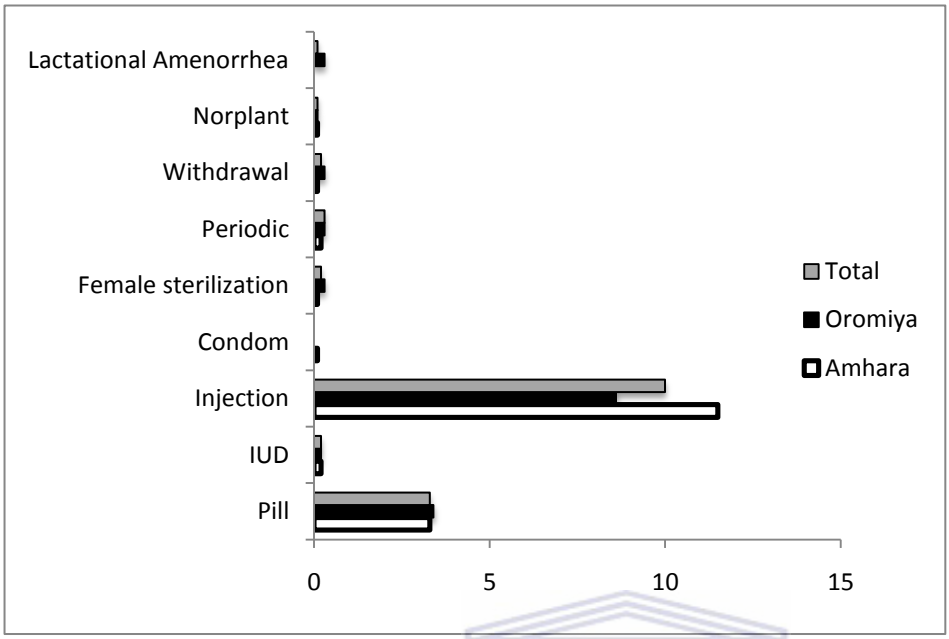


Fig 6 reveals that from the different methods used by currently married women, 10% comprised injectable contraceptives, 3.3% the pill and 0.2% IUD. At 14.9% of all current contraceptive usage, the use of modern methods was very high among currently married women in general.

Table 4.5 Percentage distribution of some FP variables by region, 2005

FP variables	Amhara Region		Oromiya Region		Over all
	N^{o}	%	N^{o}	%	
Contraceptive use and intention					
Using modern method	194	15.1	186	2.8	380(13.9)
Using traditional method	4	0.3	10	0.7	14(0.55)
Non user intend to	508	39.6	743	51.3	1251(45.8)
Does not intend to	576	44.9	509	35.2	1085(39.7)
Preferred future method					
Pill	33	6.6	160	22.6	193(16.0)
Injection	453	90.4	479	67.6	932(77.0)
Other	15	3.0	70	9.98	85(7.0)
Main reason not to use contraceptives					
Menopausal	46	8	34	6.7	80(3.1)

Subfecund, infecund	61	10.8	57	11.3	118(10.9)
Wants more children	129	22.4	65	12.9	194(18)
Knows no method	62	10.8	21	4.2	83(7.7)
Religious prohibit	39	6.8	58	11.5	97(9.0)
Health concern	89	15.5	45	8.9	134(12.4)
Husband opposed	17	3	29	5.7	46(4.3)
Respondent opposed	36	6.3	20	4.0	56(5.2)
Other reasons	96	16.4	176	34.8	272(25.6)

Note: Some of the frequency figures do not add up to 2730 because of missing values

In the study area, only 15% of women had intention to use contraception, which was slightly higher for Amhara region (12.8%) compared to Oromiya region. There was high percentage in both regions for non users that had no intention to use any method of contraception (39.6% for Amhara and 51% for Oromiya) and among users of contraceptives those who had no intention to use was higher in Amhara (44.9%) than Oromiya region (35%).

More than three fourth (77 percent) of currently married women who were not using any contraception at the time of the survey said that they intend to use injection method in the future, and 16 percent of them wanted to use pills the remaining reported to use other methods. In the same case in Amhara region almost 90% of them reported to use injection method in the future and almost 68% of them in Oromiya region.

The reasons for not using contraception among women of Amhara regions health related reason (15.5%), religious prohibit(10.8%) and wants more children (10.8%) were also the most important reasons followed by menopausal (8%), lack of knowledge of family planning (6.8%) and respondents opposed (6.3%).The reasons for non using of contraception among Oromiya women religious prohibit (11.5%) and subfecund or infecund (11.3%) were also the most important reasons followed by menopausal (6.3%), husband opposed (5.7%) and lack of knowledge of contraceptive methods (4.2%).

4.6 Prevalence of contraceptive use

One of the objectives of this study is to asses the current level of contraceptive usage among women of reproductive age group in the two regions. As the 2005 EDHS stated that the national CPR was 14.7% and this study found that the CPR was 16.1% and 13.6% in Amhara and Oromiya respectively. The CPR of Oromiya region is found to be below the national level. Further analysis is made on CPR according to different variables.

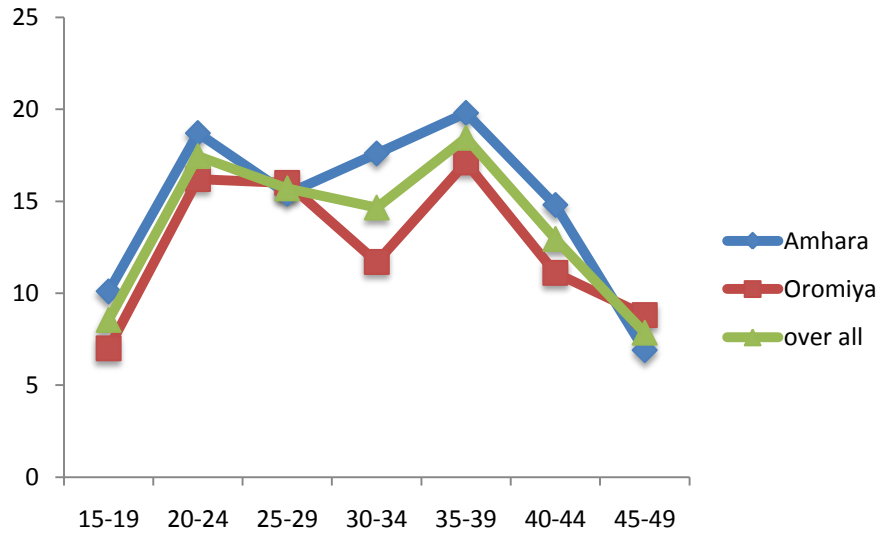
Table 4.6 Percentage distribution of contraceptive uses among currently married women aged 15-49, by demographic characteristics and regions, 2005

Demographic characteristics	**Amhara region**		**Oromiya region**	
	Use	**Non use**	**Use**	**Non use**
Age				
15-19	14(10.1)	124(89.9)	8(7.0)	106(93.0)
20-24	42(18.7)	183(81.3)	42(16.2)	217(83.8)
25-29	41(15.4)	225(84.6)	52(16.0)	274(84.0)
30-34	33(17.6)	155(82.4)	29(11.7)	218(88.3)
35-39	38(19.8)	154(80.2)	36(17.1)	175(82.9)
40-44	21(14.8)	121(85.2)	16(11.1)	128(88.9)
45-49	9(6.9)	122(93.1)	13(8.8)	134(91.2)
Age at first marriage				
<=9	3(27.3)	8(72.7)	0(0.0)	3(100.0)
10-14	106(13.7)	666(86.3)	52(13.9)	323(86.1)
15-19	73(16.4)	373(83.6)	107(13.3)	697(86.7)
20-24	12(27.9)	31(72.1)	33(15.1)	185(84.9)
25-29	4(57.1)	3(42.9)	10(10.3)	35(89.7)
30+	0(0.0)	3(100.0)	0(0.0)	9(100.0)
Number of living children	15(11.2)	119(88.8)	4(3.5)	110(96.0)
None	123(16.2)	635(83.8)	118(14.4)	703(85.6)
1-4	52(14.6)	304(85.4)	65(14.3)	391(85.7)
5-8	8(23.5)	26(76.5)	15(9.0)	48(84.2)
9+				
Total children ever born				
None	11(9.9)	100(90.1)	4(4.3)	89(95.7)
1-4	89(17.4)	422(82.6)	80(15.2)	448(84.8)
5-8	62(16.8)	307(83.2)	74(15.6)	400(84.4)
9+	36(12.4)	225(87.6)	38(10.8)	315(89.2)

Ideal number of children				
None	21(13.9)	130(86.1)	12(7.9)	140(92.1)
1-5	107(18.2)	482(81.8)	128(20.1)	510(79.9)
6+	57(13.3)	370(86.7)	42(9.7)	390(90.3)
Non numeric response	13(11.3)	102(88.7)	14(6.2)	212(93.8)
Fertility preference				
Have another	87(13.6)	551(86.4)	79(11.0)	642(89.0)
Undecided	0	12(100.0)	1(9.1)	10(90.9)
No more	109(18.0)	495(82.0)	111(16.3)	571(83.7)
Other	2(7.1)	26(92.9)	5(14.7)	29(85.3)

Contraceptive use in Amhara region was low at the younger age (15-19 years) and increased as age increases up to the 40-44 age groups. After that the percentage of women who used contraceptive decreased at older ages (45-49). It indicates that women of age 20-44 were more likely to use contraceptives than women of age 15-19 and 45-49. Women of age 35-39 were the highest contraceptives users among all age groups of Amhara region and conversely age group 45-49 were the lowest contraceptive users (6.9%) among all Amhara women. In Oromiya region the use of contraceptive was almost the same pattern as Amhara region. It was highest in age group 35- 39 (17percent) and lowest in age group 15-19 (7 percent). Currently married women of the Oromiya region 91% of age group 45-49 were not currently used contraceptives. It is clearly shown in fig 7.

Fig 7 Percentage of Currently Married Women Age 15-49 of contraceptive use by regions, 2005



Proportion of current contraceptive use increased as the number of living children increased in both regions. 11.2% of currently married women in Amhara region used contraceptives but they did not have child at the time of the survey. It was much less in Oromiya region (3.5%) compare to Amhara region. The use of contraceptives was the highest with women who had 9 and more children in Amhara region (23.5%) and the use contraceptives was highest with women who had up to four children in Oromiya region (14.4%).

As indicated in the above table women who got married at older age were not currently using contraceptives in both regions. Of all currently married women in Amhara region those who got married at the age of 25-29, the use of contraceptives was 57.1% and it was the highest proportion. While in Oromiya region the highest proportion was for those who married at the age of 20-24 (15.1%). Unexpectedly less proportion was observed for those women who got married at early age (10-14) in Amhara and Oromiya regions.

Contraceptive use was high for those currently married women who had 1-4 children in Amhara region. Only 9.9% of women with no children used contraceptives in Amhara and 4.3% of women who did not have any children used contraceptives in Oromiya region. The highest percentage of contraceptive used in Oromiya region was for those who had 5-8 children and it was almost the same percentage with those who had 1-4 children.

Regarding to ideal number of children, currently married women who wanted to have less number of children used contraceptive than those who wanted to have more children. However the highest percentage was observed for women who wanted to have 1-5 children than those who needed to have no children in Amhara region as well as in Oromiya region (18% and 20.1% respectively). Women who reported non numeric response used contraceptive least (11% in Amhara and 6% in Oromiya).

Current contraceptive use was highest for women who wanted no more children in Amhara (18%) and in Oromiya (16%). Those currently married women in both regions who did not decide to have another child used contraceptive least and women who desired to have another child used contraceptive less as well.

Table 4.7 Percentage distribution of contraceptive uses among currently married women aged 15-49, by socio economic characteristics and regions, 2005

Socio-economic variables	Amhara region		Oromiya region	
	Use	Non use	use	Non use
Educational level				
No education	147(13.4)	947(86.6)	93(8.3)	1025(91.7)
Primary	25(18.2)	112(81.8)	62(24.5)	191(75.5)
Secondary	21(51.2)	20(48.8)	38(53.5)	33(46.5)
Higher	5(50.0)	5(50.0)	3(50.0)	3(50.0)
Religion				
Orthodox	164(15.3)	910(84.7)	89(20.5)	345(79.5)
Catholic	--	--	1(17.4)	19(82.6)
Protestant	1(50.0)	1(50.0)	36(16.1)	188(83.9)
Moslem	33(16.3)	170(83.7)	64(8.9)	659(91.1)
Traditional	0	2(100.0)	3(9.1)	30(90.9)
Others	0	1(100.0)	0	11(100.0)
Place of residence				
Urban	33(40.7)	48(59.3)	59(46.5)	68(53.5)
Rural	165(13.7)	1036(86.3)	137(10.4)	1184(89.6)
Ethnic group				
Amhara	194(15.9)	1023(84.1)	40(29.0)	98(71.0)
Oromo	1(3.6)	27(96.4)	144(11.7)	1087(88.3)
Others	3(8.1)	34(91.9)	12(15.2)	67(84.8)
Employment status				
Currently working	75(25.1)	224(74.9)	70(16.0)	367(84.0)
Not working	123(12.5)	860(87.5)	126(12.5)	885(87.5)

Women who had higher education used contraceptives more than less educated women. In both regions contraceptive use was increased with the increase of education level. Exactly half of currently married women with higher education level in Amhara region were currently using contraceptives. Only 13% of women with no education used contraceptive and 18% of women in primary educational level used contraceptives. The use of contraceptives in Oromiya region was slightly less than women with no education (8.3%) and higher in both primary and secondary educated women (24.5% and 53.5% respectively.

According to religion the use of contraceptives were vary from 8.9% to 50%. Only 15.3% of women who follow Orthodox religion in Amhara used contraceptives and 20.5% of currently married women who follow the Orthodox religion used contraceptives in Oromiya region. 50% of the protestant religion followers in Amhara region were currently using any type of contraceptives; however it was only 16.1% of them were using contraceptives in Oromiya. It was less number of Muslim women in Oromiya region is used contraceptives (8.9%). To clarify that in the same religious category, the percentage of non user of contraceptives was much higher than the user group.

It is obvious that the use of contraceptives is higher in urban areas than rural areas. It is then be shown in Table 4.7 that the use of contraceptive was nearly the same in urban of both regions (40.7% and 46.5%). 13.7% of currently married women in Amhara region currently used any contraceptives while in Oromiya region it was only 10.4%.

Almost 16% of currently married women from Amhara ethnic group who were living in the region used contraceptives and only 3.6% of women from Oromo ethnic group used contraceptives in Amhara region. Similarly 29% of women from Oromo ethnic group who were living in the region used contraceptives and 11.7% of women from Amhara ethnic group used contraceptives.

Regarding to an employment status the use of contraceptive was high for those who were currently working. It was much higher in Amhara region (25%) than Oromiya region (16%). Those women who were not currently working used contraceptive least in both region and it was the same percentage (12.5%).

Table 4.8 Percentage distribution of contraceptive uses among currently married women aged 15-49, by FP characteristics and regions, 2005

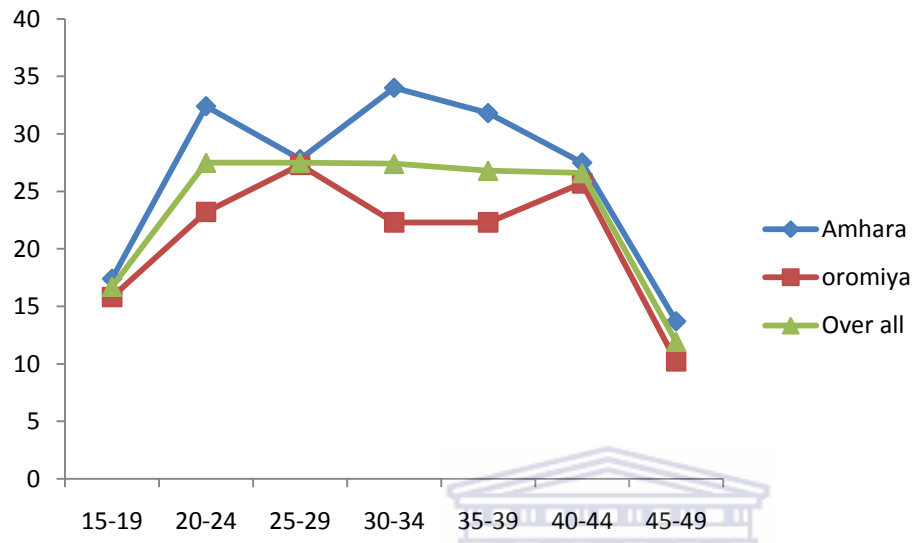
FP variables	**Amhara region**		**Oromiya region**	
	Use	Non use	Use	Non use
Knowledge of any method				
Knows no method	-	134(100)	-	76(100)

Knows method	198(17.2)	95(82.8)	196(14.3)	1176(85.7)
Desire for more children				
Wants with in 2 years	17(8.1)	193(91.9)	11(5.8)	178(94.2)
Wants after 2 years	68(16.8)	333(83.2)	66(13.6)	421(86.4)
Wants no more children	109(18.0)	495(82.0)	111(16.3)	571(83.7)
Others	4(6.3)	59(93.7)	8(8.9)	82(91.1)
Heard about family planning				
No	122(12.1)	886(87.9)	80(8.0)	918(92.0)
yes	76(27.7)	198(72.3)	116(25.8)	333(74.2)

The above table indicates as for currently married women form those who knew any family planning method only 17.2 percent of them in Amhara and slightly less in Oromiya (14.3%) were currently using contraceptives.

Twenty eight percent of Women who heard about family planning form mass media used contraceptive in Amhara region and 12% of them were currently using FP method but they did not heard about FP in any mass media. The use of contraceptives among currently married women in Oromiya region who heard about it from media was slightly less and it was only 25.8%. However, 8% of women used contraceptives but they did not heard about it form any media.

Fig. 8 Percentage of Currently Married Women Age 15-49 of ever used of contraceptive by regions, 2005



4.7 Bi- variate Analysis of current and ever use of contraceptives

The χ^2 test for independence is used to determine whether there is an association between two categorical variables. For this reason it is applied here in order to examine the association between each independent variable and the dependent variables of current use and ever use of contraceptive and unmet need for FP by regions.

4.7.1 Bivariate analysis of demographic characteristics of currently married women of Amhara region

Ever used of contraception refers to women who have used contraceptive methods at any time in the past and those who were currently using a method at the time of the survey.

Table 4.9 Chi-square test results showing association between Demographic variables and use of contraceptives in Amhara regions, 2005

Demographic variable	Current use methods		Ever used methods	
	Pearson Chi square	P- Value	Pearson Chi square	P- Value
Age	15.597***	0.016	28.055*	0.000
Age at first marriage	18.188**	0.003	27.743*	0.000
Number of living children	10.534	0.569	13.979	0.302
Total children ever born	11.944	0.611	31.305**	0.005
Ideal number of children	11.376	0.123	21.982**	0.003
Fertility preferences	8.070***	0.018	10.545**	0.005

*P<0.001; **= P<0.01; ***= P<0.05

The results of the chi-square test of demographic characteristics and current and ever use of contraceptives of Amhara region show that there is a significant association between age of women and fertility preference and current use of contraceptive at P<0.05 and there is also a significant association between current use and age at first marriage at P<0.01. There has no significant association between number of living children, total ever born and ideal number of children and current use of contraceptives at any level of significance. Moreover, the above table reveals that there is a significance association between age of women and age at first marriage and ever used of contraceptives at P<0.001 and also there is association between total children ever born, ideal number of children and fertility preferences and ever used of contraceptive at P<0.01. While there is no a significant association between umber of living children and ever used of contraceptive.

4.7.2 Bivariate analysis of socio economic characteristics of currently married women of Amhara region

Table 4.10 Chi-square test results showing association between socio economic variables and use of contraceptives in Amhara region, 2005

Socio economic variables	Current used method		Ever use method	
	Pearson Chi square	P- Value	Pearson chi square	P- value
Ethnic group	16.566***	0.011	23.743*	0.001
Religion	2.504	0.644	16.131**	0.003
Educational level	53.526*	0.000	1.033E2*	0.000
Type of place of residence	42.366*	0.000	84.159*	0.000
Employment status	27.814*	0.000	1.981	0.159

*P<0.001; **= P<0.01; ***= P<0.05

Table 4.10 reveals that there is a significant association between ethnic group and current use of contraceptive at P<0.05 and with ever use of contraceptive at p<0.001. Educational level, type of place of residence and employment status are statistically significant at P< 0.001 with current use of contraceptives. Even though, there is no significance association between religion and current use of contraceptives.

At the same time at P< 0.001 the association between ethnic group, educational level and place of residence and ever use of contraceptives is statistically significant and there is also a relation between religion and ever use of contraceptive (P<0.01). While an employment status has no relation with ever use of contraceptive at any level of significance.

4.7.3 Bivariate analysis of Family Planning characteristics

Table 4.11 Chi-square test results showing association between FP variables and use of contraceptives in Amhara region

Family planning variables	Current use method		Ever used method	
	Pearson Chi square	P- Value	Pearson chi square	P- value
Knowledge of contraceptive method	27.333*	0.000	56.860*	0.000
Desire more children	23.697*	0.001	20.951**	0.002
Heard about FP	40.323*	0.000	85.299*	0.000

*= P<0.001: **=P<0.01

Table 4.11 represents the bi variate analysis of family planning in Amhara region and it reveals that knowledge of contraceptive methods, desire for more children and heard about family planning are statistically significant at P<0.001with current use of contraceptive. Moreover, these variables are also significantly associated with ever use of contraceptive at P<0.001and P<0.01.

4.7.4 Bivariate analysis of demographic characteristics of currently married women of Oromiya region

Table 4.12 Chi-square test results showing association between Demographic variables and Use of contraceptives in Oromiya regions, 2005

Demographic variable	Current use method		Ever used method	
	Pearson Chi square	P- Value	Pearson Chi square	P- Value
Age	13.763***	0.032	21.050**	0.002
Age at first marriage	2.785	0.733	3.295	0.069
Number of living children	10.733***	0.013	3.030	0.387

Total ever born children	31.883***	0.028	6.428	0.093
Ideal number of children	55.589*	0.000	71.740*	0.000
Fertility preferences	36.876*	0.000	32.970*	0.000

*=P<0.001; **= P<0.01; ***= P<0.05

The above table indicates the results of the chi-square test demographic characteristics and current and ever use of contraceptives of Oromiya region. a significant association is observed between age of women and total ever born children and current use of contraceptive at P<0.05 and ideal number of children and fertility preferences at P<0.001 and current use of contraceptive. There is no a significant association between age at first marriage, number of living children and current use of contraceptives at any level of significance. Moreover, the above table reveals that there is a significance association between age of women and ever use of contraceptives at P<0.01 and also there is association between ideal number of children and fertility preferences and ever used of contraceptive at P<0.001. No significant association between age at first marriage, number of living children and total children ever born and ever use of contraceptive is observed.

4.7.5 Bivariate analysis of socio economic characteristics of currently married women of Oromiya region

Table 4.13 Chi-square test results showing association between socio economic variables and use of contraceptives in Oromiya region, 2005

Socio economic variables	Current used method		Ever use method	
	Pearson Chi square	P- Value	Pearson chi square	P- value
Ethnic group	58.592*	0.000	96.445*	0.000
Religion	35.375*	0.000	68.330*	0.000
Educational level	1.558E2*	0.000	1.676*	0.000
Place of residence	1.289E2*	0.000	1.913E2*	0.000

Employment status	2.792	0.095	24.924∗	0.000

∗=P<0.001

The bi-variate analysis also confirmed that there is a statistically significant difference between some socio economic variables and ever and current use of contraceptives in Oromiya region. It shows that there is a significant association between ethnic group, religion, educational level, type of place of residence and current use of contraceptive at P<0.001 level of significance. However employment status is not significantly associated with current use. Also, there is a significant association between ethnic group, religion, educational level, type of place of residence and employment status and ever used of contraceptive at 0.001 level of significance.

4.7.6 Bivariate analysis of Family Planning characteristics

Table 4.14 Chi-square test results showing association between FP variables and use of contraceptives in Oromiya region, 2005

Family planning variables	**Current use method**		**Ever used method**	
	Pearson Chi square	P- Value	Pearson chi square	P- value
Knowledge of contraceptive method	12.731∗	0.002	26.249∗	0.000
Desire for more children	23.697∗	0.000	20.851∗	0.002
Heard about FP	40.323∗	0.000	85.299∗	0.000

∗= P<0.01

The bivariate analysis presented on table 4.14 shows that the selected family planning variables are significantly associated with current use of contraceptive and with ever use of contraceptive at P<0.01 level of significant.

4.7.7 Bivariate analysis of demographic characteristics of overall currently married women

Table 4.15 Chi-square test results showing association between Demographic variables and Use of contraceptives of the over all, 2005

Demographic variable	**Current use of contraceptives**		**Ever used of contraceptives**	
	Pearson Chi square	P- Value	Pearson Chi square	P- Value
Age	25.900*	0.000	41.069*	0.000
Age at first marriage	4.975	0.419	3.662	0.599
Number of living children	11.420**	0.010	7.979***	0.046
Total ever born children	13.975**	0.003	13.612**	0.003
Ideal number of children	40.239*	0.000	70.062*	0.000
Fertility preferences	14.597*	0.001	20.777*	0.000

*= P<0.001; **=P<0.01; P<0.05

The results of the chi-square test show that only age at first marriage is not statistically significant with current and ever use of contraceptive of over all women. Age of women, ideal number of children and fertility preferences are significant at 0.001 levels and number of living children and total ever born children are statistically significant at 0.01 and 0.05 levels with current and ever use of contraceptives.

4.7.8 Bivariate analysis of socio economic characteristics

Table 4.16 Chi-square test results showing association between socio economic variables and use of contraceptives of over all, 2005

Socio economic variables	**Current use of contraceptive**		**Ever used contraceptive**	
	Pearson Chi square	P- Value	Pearson chi square	P- value
Ethnic group	17.707*	0.000	42.401*	0.000
Religion	15.001*	0.000	15.917*	0.000

Educational level	1.211E2*	0.000	2.136 E2*	0.000
Type of place of residence	1.619E2*	0.000	2.614E2*	0.000
Employment status	22.652*	0.000	20.523*	0.000

*= P<0.001

Table 4.16 shows that there is a significant association between ethnic group, religion, educational level, type of place of residence and employment status and current use of contraceptives and ever used of contraceptives at 0.001 p value.

4.7.9 Bivariate analysis of Family Planning characteristics

Table 4.17 Chi-square test results showing association between FP variables and use of contraceptives in both region, 2005

Family planning variables	**Current use method**		**Ever used method**	
	Pearson Chi square	P- Value	Pearson chi square	P- value
Knowledge of contraceptive method	38.569*	0.000	74.579*	0.000
Desire for more children	30.845*	0.000	33.166*	0.000
Heard about FP	1.169E2*	0.000	1.883E2*	0.000

*P<0.001

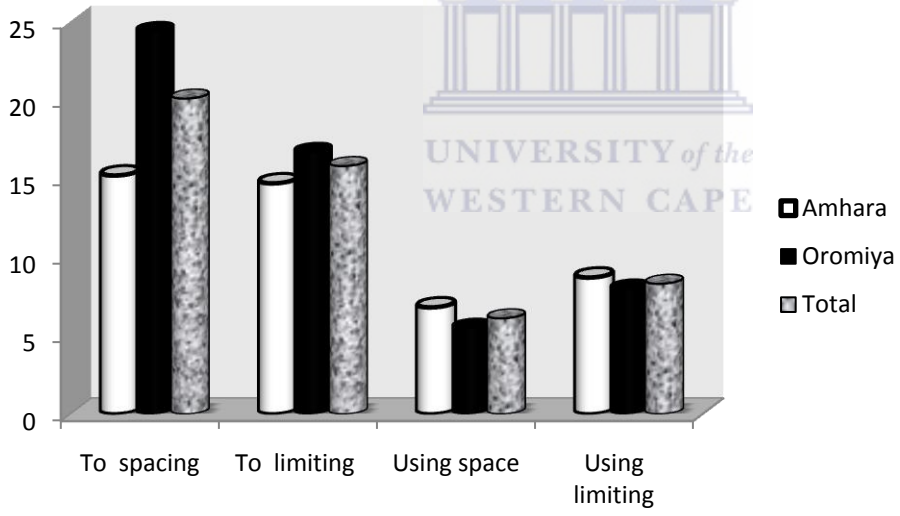
The bivariate analysis of some FP variables of the over all samples shows that there is a statistical association between knowledge of contraceptive method, desire for more children and heard about family planning and current use and ever use of contraceptive at P< 0.001.

4.8 Unmet Need for Family Planning

Table 4.18 The descriptive results of women who had unmet need for contraception by regions, 2005

	Amhara region		Oromiya region		Total
	No	%	No	%	
Unmet need					
To spacing	195	15.2	354	24.4	549(20.1)
To limiting	189	14.7	242	16.7	431(15.8)
Using space	87	6.8	80	5.5	167(6.1)
Using limiting	111	8.7	116	8.0	227(8.3)

Fig. 9 Percentage distribution of unmeet need and met need for FP by region, 2005



One in three currently married women (36 percent) had an unmet need for family planning. Unmet need to spacing was 20.1% and unmet need to limiting was 15.8%. The need for limiting (8.3 percent) was higher than the need for spacing (6.1 percent). Currently only 30 % and 41% of the demand for family planning were being met in Amhara region and Oromiya region respectively.

Table 4.19 Percent distribution of currently married women by level of unmet need for contraception by selected demographic and socio economic variables and region, 2005

Variables	Amhara region		Oromiya region		Over all	
	Spacing	Limiting	Spacing	Limiting	Spacing	Limiting
Age						
15-19	32(56.1)	11(19.3)	46(73.0)	9(14.3)	78(65.0)	20(16.7)
20-24	50(45.9)	17(15.6)	87(59.6)	17(11.6)	137(53.7)	34(13.3)
25-29	57(45.6)	27(21.6)	98(49.2)	49(24.6)	155(47.8)	76(23.5)
30-34	31(32.3)	32(33.3)	64(45.7)	47(33.6)	95(40.3)	79(33.5)
35-39	21(20.4)	44(42.7)	45(33.8)	52(39.1)	66(28.0)	96(40.7)
40-44	2(3.2)	40(63.5)	13(18.1)	43(59.7)	15(11.1)	83(61.5)
45-49	2(6.9)	18(62.1)	1(2.6)	25(64.1)	3(4.4)	43(63.2)
Place of residence						
Urban	6(12.2)	10(20.4)	10(11.8)	16(18.8)	16(11.9)	26(19.4)
Rural	189(35.5)	179(33.6)	344(48.7)	226(32.0)	533(43.0)	405(32.7)
Level of education						
No education	167(34.9)	165(34.4)	268(47.8)	200(35.7)	435(41.8)	365(35.1)
Primary	25(37.3)	17(25.4)	76(43.4)	37(21.1)	101(41.7)	54(22.3)
Secondary	3(10.3)	5(17.2)	8(16.0)	4(8.0)	11(13.9)	9(11.4)
Higher	-	2(28.6)	2(33.3)	1(16.7)	2(15.4)	3(23.1)
Ethnic group						
Amhara	180(32.1)	186(33.2)	23(28.8)	17(21.2)	203(31.7)	203(31.7)
Oromo	7(87.5)	0	316(46.9)	214(31.8)	323(47.7)	214(31.4)
Other	8(57.1)	3(21.4)	15(39.5)	11(28.9)	23(44.2)	14(26.9)
Religion						
Orthodox	173(34.7)	161(32.3)	93(35.6)	79(30.3)	226(35.0)	240(31.6)
Catholic	-	-	6(40.0)	5(33.3)	6(40.0)	5(33.3)
Protestant	-	-	58(47.2)	29(23.6)	5(46.8)	29(23.4)
Muslim	22(26.5)	28(33.7)	188(50.5)	120(32.3)	210(46.2)	148(32.5)
Number of living children						
None	21(45.7)	10(21.7)	24(77.4)	3(9.7)	45(58.4)	13(16.9)
1-4	135(40.2)	78(23.2)	245(53.8)	92(20.2)	380(48.0)	170(21.5)
5-8	39(21.9)	87(48.9)	79(29.2)	127(46.9)	118(26.3)	214(47.7)
9+	0	14(63.6)	6(17.1)	20(57.1)	6(10.5)	34(59.6)
Employment status						
Not working	153(36.1)	148(34.9)	248(46.2)	163(30.4)	401(41.7)	311(32.4)
Currently working	42(26.6)	41(25.9)	106(41.6)	79(31.0)	148(35.8)	120(29.1)

Age at first marriage						
<=9	-	2(40.0)	-	-	-	2940.0)
10-14	125(35.3)	123(34.7)	92(43.8)	66(31.4)	217(38.5)	189(33..5)
15-19	62(32.0)	59(30.4)	203(45.1)	140(31.1)	265(41.1)	199(30.9)
20-24	8(34.8)	3(13.0)	50(45.5)	27(24.5)	58(43.6)	30(22.6)
25-29	-	2(33.3)	9(45.0)	7(35.0)	9(34.6)	9(34.6)
30+	-	-	-	2(100)	-	2(100)
Fertility preference						
No more children	55(15.6)	189(53.5)	83(19.0)	242(55.5)	138(17.5)	431(54.6)
Have another one	139(61.5)	-	266(77.1)	-	405(70.9)	-
Other	1(33.3)	-	5(45.5)	-	6(42.9)	-
Knowledge of FP						
Knows no method	19(59.4)	13(40.6)	15(60.0)	10(40.0)	34(59.6)	23(40.4)
Knows any method	176(32.0)	176(32.0)	339(44.2)	232(30.2)	515(39.1)	408(31.0)
Heard about FP						
No	150(35.5)	151(35.7)	261(50.5)	176(34.0)	411(43.7)	327(34.8)
Yes	45(28.3)	38(23.9)	92(33.6)	66(24.1)	137(31.6)	104(24.0)

The results in table 4.19 above indicated that unmet need was highest among the youngest age group (15-19 years) in Amhara and Oromiya regions (75.4% and 87.3% respectively). Generally, unmet need decreased with women age. It is important to note that unmet need for limiting increased with age (19.3% to 62.1% for Amhara and 14.3% to 64.1% for Oromiya), but unmet need for spacing was decreasing with age for both regions (56.1%-6.9% for Amhara and 73% - 2.6% for Oromiya). Generally higher percentage is observed for unmet need for spacing in younger currently married women and higher percentage for unmet need for limiting observed in older age group in both regions.

As indicated in the above table there is a big gap in unmet need between urban and rural areas in both regions. Currently married women in the Amhara rural areas had greater total unmet need (69.1%) than women who lived in urban areas (30.6%). It is the same for Oromiya region (80.7% for rural and 30.6% for urban). There was higher unmet need for spacing in rural areas and higher unmet need for limiting in urban areas of the two regions.

There was a general decline in unmet need between the two regions across education categories (Table 4.19). Women with no education had a higher unmet need for family planning (for both limiting and spacing) compared with educated women (secondary and higher). Unmet need for

spacing and limiting was higher in Oromiya region than Amhara region of currently married women with no education. It was only 28.6% of unmet need for FP for women with higher education in Amhara and it was higher in Oromiya (50%). There was no big difference between total unmet need for contraception with highest level of education in Amhara region and there was in Oromiya region.

Oromo women who lived in Amhara region reported relatively higher unmet need for contraception than those who belonged to Amhara and other ethnic groups who live in Amhara region (87.5% unmet need for spacing). It was a little less but still high unmet need for FP for Oromo women who lived in Oromiya region than Amhara and other ethnic group who lived in Oromiya region (78.7%).

Unmet need for FP in Amhara region was highest for currently married women who follow Orthodox religion (67%) followed by Muslim (60%). Although Orthodox women exhibit the lowest (65.9%) unmet need followed by the Protestant (70.8%) in Oromiya region. On the other hand, Muslim women in Oromiya region had highest unmet need for contraception (82.8%).

Total unmet need for spacing was less with women who have more children in both regions (0% for Amhara and 17.1% for Oromiya). There was also high unmet need with women who have no children in Amhara and Oromiya regions (67.4% and 87.1% respectively). Unmet need for spacing was highest among women with no and with 1-4 children in the two regions and unmet need for limiting was highest among women with 5 and more children in both regions.

The over all currently married women had slightly high unmet need for family planning who were not currently working (32.4%) than women who were currently work (29.1%). The total unmet need for family planning was high for women who were not working in both regions. Unmet need for spacing was high regarding to employment status that is high unmet need for spacing than unmet need for limiting for women who were not working and also for women who were working in both regions and for over all sampled women.

Regarding to fertility preference, those currently married women in Amhara region who want to have another children, 61.5% were not using contraceptives and therefore had unmet need for spacing and only 15.6% of women who preferred not to have another one had unmet need for spacing and 53.5% unmet need for limiting. Similarly in Oromiya region women who prefer to have other children, 77.1% of them had unmet need for FP. Those women who preferred not to have other children, 19% of them had unmet need for spacing. Similarly, 55.5% of them had unmet need for limiting. For total women unmet need is found to be 17.5 percent for spacing and 54.6 percent for limiting for those who preferred not to have another child. 70.9 percent of women who preferred to have another one had unmet need for spacing.

Unmet need for spacing and limiting declined among all categories of women by age at first marriage in Amhara region. Age 10-14 at first marriage had the highest unmet need for FP and those women who married at 25 and above had the lowest unmet need for FP. On the other hand Oromiya women who married between 20 and 24 had the lowest unmet need for contraceptives.

It is clear that awareness-raising programs through various types of media have the advantage of reaching a larger segment of the society. The above table reveals that unmet need was substantially higher among women who do not heard about FP compared with those who heard about it (71 percent versus 52 percent) in Amhara region and (85 percent versus 58 percent) in Oromiya region.

Women who have knowledge about any family planning method had less total unmet need than those who know no method. It was high in Oromiya region (74%) than Amhara region (64%). Unmet need for spacing (44%) was high percentage for Oromiya region than unmet need for limiting (30%) regarding to women who know any contraceptive method. According to the above table the total unmet need for the overall women was also high for women who know any FP method and it was high unmet need for spacing.

4.8.1 Bi- variate Analysis of unmet need for family planning of demographic characteristics

Table 4.20 Percentage distribution of currently married women of age 15-49 who have unmet need, by Demographic characteristics by region, 2005

Demographic characteristics	**Amhara Region**		**Oromiya Region**		**Overall**	
	Pearson chi square	P value	Pearson chi square	P value	Pearson chi square	P value
Age of women	3.856	0.696	9.780	0.134	3.08E2*	0.000
Age at first marriage	11.476***	0.022	2.757	0.599	27.629***	0.024
Number of living children	2.929	0.403	2.781	0.427	2.161E2*	0.000
Total ever born children	7.903***	0.048	5.748	0.125	2.609E2*	0.000
Ideal number of children	6.458	0.487	38.665*	0.000	74.580*	0.000
Fertility preference	7.964	0.093	16.166**	0.003	980.679*	0.000

* = P< 0.001, ** =P < 0.01, ***= P< 0.05

Table 4.20 depicts that age of currently married women is not statistically significant for both regions but it is significantly related with over all samples of currently married women unmet need (P< 0.001). The bi-variate result indicates that women's age at first marriage is significantly associated with unmet need for family planning in Amhara region (P<0.05) and with overall women (P<0.05). However age at first marriage is not statistically significant with unmet need in Oromiya region.

4.8.2 Bi-variate Analysis of unmet need for family planning of socio economic characteristics

Table 4.21 Percentage distribution of currently married women of age 15-49 who have unmet need, by socio economic characteristics by region, 2005

Socio economic characteristics	Amhara Region		Oromiya Region		Over all	
	Pearson Chi square	P value	Pearson Chi square	P value	Pearson Chi square	P value
Educational level	38.993*	0.000	1.299E2*	0.000	1.455E2*	0.000
Place of residence	27.682*	0.000	1.075E2*	0.000	1.192E2*	0.000
Ethnicity	15.186***	0.019	34.257*	0.000	48.7461*	0.000
Religion	8.689	0.192	41.731*	0.000	42.309*	0.000
Employment status	17.587*	0.001	2.527	0.470	12.659**	0.005

* = P< 0.001, ** =P < 0.01, ***= P< 0.05

As indicated in table 4.21 except religion, in Amhara region all socio economic characteristics are statistically significant with women's unmet need for family planning. Although an employment status is not significant with unmet need in Oromiya region. Educational level, place of residences and over all statistics the above mentioned socio economic characteristics are significant with unmet need for family planning for all currently married women.

The main problem with the bi-variate approach is that it ignores the possibility that a collection of variables, each of which could be weakly associated with the outcome, can become an important predictor of the outcome when taken together (Hosmer and Lemeshow, 1989). Hence, multivariate logistic regression approach that takes into account the drawback mentioned by the bi-variant technique is considered in the following analysis. Consequently based on the bi-variate results, variables, which showed strong significant difference between current and ever users and non-users of contraceptives and unmet need, are selected for further analysis. Due to the fact that some variables are not included in the models.

4.9 Logistic Regression Analysis

Regression models are used to explore the relationship between a dependent variable and one or multiple independent variables. Logistic regression is useful for situations in which to predict the presence or absence of a characteristic based on values of a set of predictor variables or to assess interaction effects between the independent variables. Logistic regression coefficients can be used to estimate odds ratios for each of the independent variables in the model. The model is a generalization of the binary regression model.

$$\textbf{Log } [\pi/1-\pi] = \beta_0 + \beta_1 X1 + \beta_2 X2 + \ldots + \beta_k Xk$$

Based on the bi-variate results, variables, which showed strong significant difference between current and ever users and non-users of contraceptives and unmet need, are selected for further analysis. Thus, some variables are not included in the models.

The model allows for the simultaneous estimation of the log of odds of the two outcomes. The coefficients represent the reduction or increase in the log of odds of being in one outcome relative to the other after controlling for the effects of other predictors. In the logistic result, exp (β) is the estimated multiplicative change in the odds for a unit change in the predictor, controlling for the effects of others.

Logistic regression of the dichotomous (1/0) variable "current contraceptive use yes/no", "ever use of contraceptive yes/no" and "unmet need yes/no" are used to test the statistical significance of the explanatory variables by predicting the probability that currently married women with given characteristics, and by estimating the corresponding parameters.

The logistic regression analyses are conducted in three steps. The first model is computed to estimate selected independent variables considering all married women who use contraceptive currently by region and overall. Second, the models are tested to examine the effects of demographic, socio economic and family planning characteristics for all currently married women who ever used contraceptive by region and overall. Third, models are estimated to test

the effect of selected characteristics for currently married women who have unmet need for family planning by region and as a whole.

Contraceptive use (ever use and current use) takes a value of one if the respondents reported use and zero if otherwise and total unmet need takes the value of one if the woman have unmet need and zero if otherwise (met need). The reference category of each measured independent variable has a value of one and the values for other categories are compared to that of the reference category. A value less than one imply that individuals in that category have a lower probability of reporting ever use or current use and unmet need of contraceptives than individuals in the reference category. Table 4.22-4.27 show the logistic regression estimates of the effects of selected demographic, socio economic and FP factors on current contraceptive use, ever use of contraceptive and unmet need for FP in regions separately and the over all samples as well.

4.9.1 Logistic regression analysis of current use of contraceptive

Table 4.22: - Binary logistic regression models predicting the odds of Contraceptive usage by region, 2005

Variables	Amhara		Oromiya	
	B	Exp(B)	B	Exp(B)
Age				
15-19 ®	0.000	1.000	0.000	1.000
20-24	0.555	1.742	0.583	1.792
25-29	0.260	1.297	0.312	1.366
30-34	0.401	1.494	-0.355	0.701
35-39	0.460	1.584	0.187	1.206
40-44	0.108	1.114	-0.563	0.569
45-49	-0.600	0.549	-0.818	0.441
Age at first marriage	0.000	1.000		
<=14 ®	0.354	1.424	-	-
15-24***	0.608	1.837		
25+				
Living children	-	-		
None			0.000	
1-5			19.534	3.045E8
6+			19.861	4.222E8
Total ever born				
None			0.000	1.000
1-5	-	-	-17.702	0.000

6+			-17.780	1.000
Ideal number of children				
None	-	-	0.000	1.000
1-5			1.096	**2.992
6+			0.442	1.559
Fertility preferences				
No more children ®	0.000	1.000	0.000	1.000
Have another one	-0.411	***0.663	-0.478	***0.620
other	-1.255	0.285	0.299	1.337
Educational level				
Illiterate ®	0.000	1.000	0.000	1.000
Literate	0.199	1.220	0.977	*2.803
Ethnicity				
Amhara	0.706	2.025	0.786	2.209
Oromo	-0.500	0.607	0.304	1.401
Other ®	0.000	1.000	0.000	1.000
Place of residence				
Urban	0.726	***2.068	1.305	*3.689
Rural ®	0.000	1.000	0.000	1.000
Employment status				
Not working ®	0.000	1.000	-	-
Working	0.696	*2.006		
Knowledge of FP method				
Knows no method ®	0.000	1.000	0.000	1.000
Knows any method	19.113	1.997E8	18.436	1.016E8
Heard about FP				
No ®	0.000	1.000	0.000	1.000
Yes	0.715	*2.044	0.772	*2.164

® = Reference Category; * =P<0.001; **=P<0.01; ***=P<0.05;
Predicted probability 84.5(A) and 87.8(O)
-- Not applicable

Reviewed literature shows that women are less likely to use contraceptives in their early reproductive age. The model for age of women shows that contraceptive use and age of woman are positively related. In the regression, only 45-49 ages of currently married women appeared to be negatively associated with use of contraceptive. Those women with age 20-44 were found to be statistically different from the reference group (15-19). Accordingly, the odds of using contraceptives among women in each age group except women among age group 45-49 were

more likely use contraceptive than the reference group. Women of age 45-49 were 0.549 times less likely use contraceptive than the reference group.

Regarding age at first among Amhara women, it reveals that marriage starting age of 15-24 is statistically significant association with contraceptive use. It was 1.424 times more likely to use contraceptive than the reference group. Those women who married at age 25 and above were not statistically significant but it was 1.873 times more likely to use contraceptive than the reference group.

The analysis also showed that the Amhara women who prefer to have another child are a significant predictor of contraceptive use. Hence women who prefer to have another one was less likely (60 percent) to use contraceptive than those women who wants to have no more children. Using the odds of contraceptive use among illiterates as a reference, women with better educational level have higher chance of being contraceptive users. It is clearly shown from the above table that educated women in Amhara region was 1.220 times more likely to use contraceptives when compared to the illiterate women.

In Amhara region Oromo women were less likely to use contraceptive with compare to other ethnicities women. Ethnicity was not a significant factor in explaining use of contraceptive except that Amharas were more likely to use family planning methods than Oromo women and the reference category.

Obviously women who live in rural areas have the lowest tendency toward contraceptive use, while those who live in urban areas are most likely to be currently using contraception. It is also the same in Amhara region that the use of contraceptive among urban women was 2 times more likely than the use of contraceptives of their counter parts.

Employment status is often an important factor in explaining in using contraceptive regarding exposure to information and cost. Women who are currently working were significantly more likely to use contraceptives than women who do not work. In Amhara region, woman who currently working was twofold more likely to use contraceptives than the reference category.

Knowledge of family planning in Amhara region is not a significant predictor of contraceptive use. Women who knows at least one method of contraceptive was much less likely to use contraceptives. In other hand those women who heard about family planning form mass media is significantly associated with the use of contraceptives and it was two fold more than those who did not heard about it.

In the regression, the ideal number of children that the Oromiya women want to have is statistically significant with contraceptives use. Those women who want to have 1-5 children found to be statistically different from the reference group (none) it was that they are almost three times more likely to use contraceptives than those who do not want any child. However those women who want to have six and more children are not significantly associated with contraceptive use still they were also more likely to use contraceptives than the reference group.

Fertility preference of Oromiya women is found to be negatively associated with use of contraceptives and it was a statistically significant predictor of contraceptive use. As Amhara women those who prefer to have another child were 0.620 times less likely to use contraceptives than the reference category. However, those women who want to have six and more children are found to be more likely to use contraceptive than their counter parts.

The above table reveals that educational level of Oromiya women is statistically significance and found that those currently married women who are literate were 2.803 times more likely to use contraceptive than those who are illiterate.

As shown in table 4.22 place of residence is positively associated and statistically significant with contraceptive use. Oromiya women who live in urban areas were much more likely (3.689 times) to use contraceptive than those currently married women who live in rural areas. Similarly women who heard about family planning methods from any mass media were used contraceptives than the reference category.

Table 4.23: - Binary logistic regression models of contraceptive usage of over all samples, 2005

Variables	B	S.E	Sig.	Exp(B)
Age				
15-19 ®	0.000			1.000
20-24	0.405	0.282	0.155	1.499
25-29	0.175	0.287	0.540	1.192
30-34	-0.001	0.306	0.997	0.999
35-39	0.362	0.315	0.253	1.436
40-44	-0.100	0.348	0.775	0.905
45-49	-0.586	0.381	0.124	0.557
Living children				
None®	0.000			1.000
1-5	0.540	0.580	0.352	1.715
6+	0.995	0.628	0.113	2.705
TEB				
None ®	0.000			1.000
1-5	0.410	0.644	0.525	1.506
6+	0.148	0.688	0.830	1.160
Ideal number of children	0.000			1.000
None ®	0.445	0.215	0.039∗	1.561
1-5	0.136	0.221	0.538	1.146
6+				
Fertility preferences				
No more children ®	0.000			1.000
Have another one	-0.435	0.135	0.001∗	0.647
Other	-0.361	0.419	0.390	0.697
Educational level				
Illiterate ®	0.000			1.000
Literate	0.690	0.145	0.000∗	1.994
Ethnicity				
Amhara	0.711	0.330	0.031∗	2.036
Oromo	0.190	0.328	0.562	1.210
Other ®	0.000			1.000
Place of residence				
Urban	1.024			2.785
Rural ®	0.000	0.191	0.000∗	1.000
Employment status				
Not working ®	0.000			1.000
Working	0.466	0.127	0.002∗	1.492
Heard about FP				
No ®	0.000			1.000
Yes	0.400	0.128	0.000∗	2.189
Knowledge of FP				
Knows no method	0.000			1.000
Know method	18.876	2701.941	0.994	1.557E8

® = Reference Category; ∗ = P<0.001; ∗∗ = P<0.01; ∗∗∗ =P<0.05; ♦ =P<0.10

The result of the binary logistic regression for current use of contraceptive of the overall currently married women is presented as relative odds in Table 4.23 above. It showed that, most of the predictors are non significant with the dependent variable. Ideal number of children is found to be positively related with contraceptive use. Women who need to have 1 to 5 children were 1.561 times more likely to use contraceptive than those who do not need to have any and it was also high compare to women who want to have six and more children. The significant impact is negative for fertility preference and it is found that women who prefer to have another child were 0.647 times less likely to use contraceptive than women who prefer to have no child.

There is evidence that women's educational level have a significant positive effect on current use of contraceptive use. From the overall women who are literate were 1.994 times more likely to use contraceptives than the reference category.

Ethnicity is also one of the socio economic variables which affect the use of contraceptive positively. Amhara women were twice more likely to use contraceptives than other ethnic groups and higher than Oromo women. The other important variable is the place of residence which affects the use of contraceptive of currently married women. Women who live in urban areas were almost three fold likely to use contraceptives than women who live in rural areas. Employment status has a significant positive association with the predicted variable. Women who were currently working were 50% more likely to use contraceptive than the reference group.

4.9.2 Logistic regression analysis of Ever use of contraceptives

Table 4.24: - Binary logistic regression models predicting the odds of ever use of contraceptive by regions, 2005

Variables	Amhara		Oromiya	
	B	**Exp(B)**	**B**	**Exp(B)**
Age				
15-19 ®	0.000	1.000		1.000
20-24	0.629	♦1.875	0.324	1.383
25-29	0.276	1.317	0.466	1.594
30-34	0.547	1.728	0.126	1.134
35-39	0.350	1.419	0.252	1.286

40-44	0.170	1.185	0.320	1.376
45-49	-0.706	0.494	-0.918	***0.399
Age at first marriage				
<=14	0.000	1.000		
15-24	0.212	1.237	-	-
25+	0.538	1.713		
TEB				
None ®	0.000	1.000		
1-5	0.567	1.763	-	-
6+	0.730	♦2.075		
Ideal number of children	0.000	1.000		1.000
None ®	0.051	1.052	0.624	***1.866
1-5	-0.223	0.800	0.186	1.204
6+				
Fertility preferences				
No more children ®	0.000	1.000	0.000	1.000
Have another one	-0.380	***0.684	0.676	*0.509
Other	-0.721	0.486	0.027	0.974
Educational level				
Illiterate ®	0.000	1.000	0.000	1.000
Literate	0.599	**1.820	1.019	*2.771
Ethnicity				
Amhara	0.585	1.794		
Oromo	-0.372	0.689	-	-
Other ®	0.000	1.000		
Religion				
Orthodox	-0.531	*0.588	0.245	1.278
Other	0.000	1.000	0.000	1.000
Place of residence				
Urban	1.360	*3.896	1.705	*5.499
Rural ®	0.000	1.000	0.000	1.000
Employment status				
Not working ®	-	-	0.000	1.000
Working			0.075	1.078
Heard about FP				
No ®	0.000	1.000	0.000	1.000
Yes	0.882	*2.416	0.807	*2.241
Knowledge of FP				
Knows no method	0.000	1.000	0.000	1.000
Know method	19.904	4.407E8	19.418	2.712E8

® = Reference Category; * = P<0.001; ** = P<0.01; *** =P<0.05; ♦ =P<0.10

Predicted probability (A) =76.8, (O) = 82.6

-- Not applicable

The result of regression analysis on ever use of contraceptive among currently married women by region is presented on the above table and some of the predictors are not statistically significant and it implies that they have no strong effect on women's ever used of contraceptive.
A non-linear positive relationship between women's age and ever use of contraceptive is attained across Amhara in age group 20-24 and negative relationship in age group 45-49 in Oromiya regions. The odds ratio indicated as the age group 20-24 was 1.875 times more likely ever used contraceptives and women who are in age group 45-49 was much less (0.399) ever used contraceptive than the reference group in Amhara and Oromiya regions respectively. Total ever born children is found to be significant with ever used of contraceptive only in Amhara region and those women who ever born 6 and more children were 0.186 times less ever used of contraceptive than those who have no child.

On the other hand ideal number of children a woman wants to have had a positive effect on ever used of contraceptive in Oromiya region. In contrast women who want to have 1 up to 5 children were 1.866 times more likely ever used contraceptive than those who wants to have none. Fertility preference of women is found to be negatively associated and significant with ever use of contraceptive in both regions. It indicates that women prefer to have more and more children the chance of using contraceptive in their life time will be decrease. Women who prefer to have another child were 0.684 and 0.512 times less likely ever used contraceptives than the reference category in Amhara and Oromiya regions respectively.

As expected, the log-odds of ever used contraceptives are much higher for educated women than those with no education across regions. Level of education of women has a positive effect on ever used of family planning method. Women who were literate in Amhara region 1.820 times more likely ever used contraceptive than those who were illiterate in the same way women with education in Oromiya region were 2.771 times more likely ever used contraceptive than the reference group. When comparing the two regions women in Oromiya region were more likely ever used contraceptive than Amhara women.

Place of residence is one of the crucial socioeconomic variables in affecting contraceptive use. The above table indicated that place of residence is found to be significant at ($p < 0.001$) and

positively related with ever used of contraceptive. Urban women have higher chance of using contraceptive as compared with rural women. Consequently, urban women of Amhara region were much more likely (3.896) ever used of family planning method than rural women and Oromiya women in urban areas were 5.499 times more likely ever used of contraceptives. The odds ratio is much higher in Oromiya region and implies that place of residence has strong effect on ever used of FP method in Oromiya women than Amhara women.

The binary regression model reveals that information about family planning method is one of the factors that affect women's past use of contraceptive. Women who heard about family planning on any media have the possibility to use contraceptive. Hence it is factual in the regions as well. Amhara women who heard about family planning in the last twelve months were two fold likely ever used of contraceptive than their counter parts. Besides that it was a little bit higher than Oromiya region. Similarly in Oromiya women who heard about FP were 2.241 times more likely ever used of contraceptive than those who did not heard about FP.

Table 4.25: - Binary logistic regression models predicting the odds of ever use of contraceptive of overall, 2005

Variables	B	Exp(B)
Age		
15-19®	0.000	♦1.000
20-24	0.415	1.514
25-29	0.323	1.381
30-34	0.286	1.331
35-39	0.253	1.287
40-44	0.220	1.246
45-49	-0.839	**0.432
Number of living children		
None	0.000	1.000
1-5	0.189	1.208
6+	0.905	♦2.473
Total ever born children		
None	0.000	1.000
1-5	0.524	1.690
6+	0.068	1.070
Ideal number of children		
None	0.000	1.000
1-5	0.292	♦1.339
6+	-0.099	0.906

Fertility preference		
No more children ®	0.000	1.000
Have another one	-0.481	∗0.618
Other	-0.236	0.790
Residence		
Urban	1.591	∗4.911
Rural®	0.000	1.000
Religion		
Orthodox	-0.172	1.000
Other	0.000	∗0.842
Educational level		
Illiterate ®	0.000	1.000
Literate	0.881	∗2.413
Ethnicity		
Amhara	1.045	∗2.844
Oromo	0.140	1.150
Others ®	0.000	1.000
Employment status		
No®	0.000	1.000
Currently working	0.307	∗∗1.360
Knowledge of FP method		
Knows no method	0.000	1.000
Knows any method	19.598	3.245E8
Heard about FP		
No ®	0.000	1.000
Yes	0.825	∗2.282

® = Reference Category: ∗ =P<0.001; ∗∗=P<0.01; ♦=P<0.05

Table 4.25 presents the results concerning to ever used of contraceptive among overall currently married women. The results indicate that age of women of 20-24 is positively related with ever used of contraceptive while the last age group is negatively associated. The over all sampled women of age 20-24 were 1.514 times more likely ever used of contraceptive than women of age 15-19 conversely women of age 45-49 were much less (0.432) likely ever used of contraceptive than the reference group. It was much more likely (2.473) ever used of contraceptive between women who have six and more living children comparing to women who did not have any.

Residence in urban areas has correlated with lower contraceptive use. Women living in urban areas were 4.911 times more likely ever used of contraceptive than those living in rural areas. Religion does not have strong effect on women's ever used of FP. It was negatively associated

with ever used of contraceptive. Women who followed Orthodox religion were 0.842 times less likely ever used of FP method.

As discussed in the literatures review education is one and important factor which affect women's ideology to better life. Level of education therefore has a positive relation with ever used of contraception. Women who are literate were 2.413 times more likely ever used of contraceptive than their counter parts.

Regarding ethnicity Amhara women were much more likely ever used contraceptive than Oromo women and other ethnicities. It has positive association with the dependent variable. Furthermore the analysis result shows a significant and positive association between ever used contraceptive and employment status of currently married women. Women who are currently working had a higher probability (1.360) of ever used of contraceptive than their counter parts. Those women who have information about any family planning method had a chance to use contraceptive. Hence women who heard about family planning were 2.282 times much more likely ever used of contraceptive than the reference category.

4.9.3 Logistic regression analysis of Unmet Need for Family Planning

Table 4.26: - Binary logistic regression models predicting the odds of unmet need for contraceptive by regions, 2005

	Amhara region		**Oromiya region**		**Over all**	
Variables	**B**	**Exp(B)**	**B**	**Exp(B)**	**B**	**Exp(B)**
Age						
15-19					0.000	1.000
20-24					-0.671	***0.511
25-29	-	-	-	-	-0.611	♦0.543
30-34					-0.622	♦0.537
35-39					-1.165	**0.312
40-44					-1.075	***0.341
45-49					-1.472	**0.229
Age at first marriage						
<=14	0.000	1.000	-	-	0.000	1.000
15-24	-0.519	**0.595			-0.248	♦0.780
25+	-0.402	0.669			0.565	1.760
Number of living						

children						
None	-	-	-	-	0.000	1.000
1-5					0.963	2.619
6+					0.900	2.460
TEB						
None	0.000	1.000	-	-	0.000	1.000
1-5	-0.403	0.668			-1.457	0.233
6+	-0.246	0.782			-0.987	0.373
Ideal number of children						
None	-	-	0.000	1.000	0.000	1.000
1-5			-0.832	*0.435	-0.520	***0.594
6+			-0.407	0.666	-0.262	0.769
Fertility preference						
None	-	-	0.000	1.000	0.000	1.000
Have another one			0.267	1.306	-0.100	0.905
Other			-0.738	0.478	-1.164	0.312
Educational level						
Illiterate	0.000	1.000	0.000	1.000	0.000	1.000
Literate	-0.257	0.773	-0.694	**0.500	-0.627	*0.534
Place of Residence						
Urban	-0.773	0.462	-1.501	*0.223	-1.106	*0.331
Rural	0.000	1.000	0.000	1.000	0.000	1.000
Ethnicity						
Amhara	-0.437	0.646	-1.089	***0.337	-0.978	***0.376
Oromo	0.395	1.485	-0.348	0.706	0.018	1.018
Other	0.000	1.000	0.000	1.000	0.000	1.000
Religion						
Orthodox	-	-	0.013	0.977	0.077	1.080
Other			0.000	1.000	0.000	1.000
Employment status						
Not working	0.000	1.000	-	-	0.000	1.000
Currently working	-0.691	**0.501			-0.375	**0.687
Knowledge of FP						
Knows no method	0.000	1.000	0.000	1.000	0.000	1.000
Knows any method	-20.260	0.000	-19.422	0.000	-19.902	0.000
Heard about FP						
No	0.000	1.000	0.000	1.000	0.000	1.000
Yes	-0.571	**0.565	-0.794	*0.452	-0.657	*0.519

®= Reference Category *= P<0.001, **=P<0.01; ♦=P<0.05

- Not applicable

Binary logistic regression analyses are carried out to identify independent predictors of total unmet need of currently married women for the regions separately and for over all sampled. A total of 13 covariates are included in the model which were only significant with total unmet need in the bivariate analysis. A total of 1,374 women are included in the model who had unmet need (980) and met need (394) and had no missing values for the observed covariates. Some of the predictors have no effect on total unmet need but those who are significant are discussed below.

Age of women has seven categories and the first category was selected as a reference category for analysis. It is found that all categories have made a statistically significant contribution at different level of significant to explain unmet need for family planning for over all women however it is not significant for both regions. Age of women is negatively associated with total unmet need of FP of over all women.

Reviewed literature shows that women are less likely to use contraceptives in their early reproductive ages. All categories are found to be negatively associated with total unmet need of FP and were less likely to have unmet need than the reference category. Women between 20 and 24 years old were 0.511 times less likely to have unmet need for FP than age group 15-19 and it is significant at $P< 0.05$. Women of age 45-49 have the lowest (0.229) likely to have unmet need of FP than the other age groups. Women of age 25-29 were 0.543 times less likely to have unmet need than the reference group. Generally the younger women were more likely to have an unmet need for FP than older women.

Age at first marriage is found significant only for Amhara region and for over all women. It is negatively associated with unmet need for FP. Women married (for the first time) at a young age (15-24) were significantly less likely to have unmet need than the reference category. However, age at marriage is not a significant determinant for those who married at age more than 25 years for Amhara region and also for over all samples. Women who first married at age 15-24 were 40% less likely to have unmet need than women who first married at earlier age in Amhara region and 22% less likely to have unmet need for FP than the reference category for the over all

women. It is clearly shown that less likely to have unmet need is observed for over all samples than Amhara region.

The study identifies a negative relationship between ideal number of children and probability of total unmet need only in Oromiya region and over all samples. Women with need to have higher number of children were less likely to have an unmet need. In Oromiya region women who want to have 1-5 children were 0.435 times less likely to have total unmet need than women who do not want to have child. Moreover, the over all women who want to have 1-5 children ideally were 0.594 times less likely to have unmet need than the reference category and the chance of having unmet need is higher than Oromiya women. It implies that women who have unmet need were more likely to have more children than those who do not have.

The importance of female education in contraceptive use is well documented. Educational level is found negatively associated with total unmet need in Oromiya region and over all. This study indicates that illiterate women were more likely to have an unmet need for family planning than women who are literate. In other words literate women were 50 percent less likely to have total unmet need than illiterate women in Oromiya region and it is almost the same to over all women. The over all sampled women who were literate have 0.530 times less likely to have unmet need than their counter parts. As expected, women who are educated have the lowest unmet need for contraception and less educated women have higher unmet needs.

The above table reveals that place of residence is one of the factors that affect women's unmet need for contraceptive both in regions as well as the over all sampled. It has a negative effect on unmet need for family planning methods. Women who live in rural areas have the highest tendency toward unmet need, while those who live in urban areas were most likely to be currently using contraception. It is found that place of residence is significant at different level of significance among regions and the over all women. Currently married women who live in urban areas had 54% less likely to have unmet need for contraceptive than women who live in rural areas of Amhara region. More over women who live in Oromiya urban areas had 78% less likely to have unmet need for FP than women who live in Oromiya rural areas. The over all women

who live in urban areas as a total had 67% less likely to have unmet need than the reference category.

As in the case for many other socio economic variables, ethnicity also reflects its impact on unmet need in Oromiya region and also in over all sampled women. Amhara women who live in Oromiya region reported relatively less unmet need for contraception than women who belong to other ethnic groups. It was 0.337 and 0.376 times less likely to have unmet need for FP than the reference category in Oromiya region and in over all respectively.

Employment status is found to be significant and negatively associated with total unmet need in Amhara region and in overall samples. Those who are currently working had a lower probability of having unmet need than those who did not work at all. It was 0.501 times less likely to have unmet need than the reference category in Amhara region and it was relatively higher in over all women but still was 0.687 times less likely to have unmet need for FP than the reference category.

Another factor identified in this study is the effect of heard about FP from any media on unmet need. It is found to be significant and has negative effect on unmet need in both regions and in over all. The more women heard about it, the lower the probability of having unmet need. Women in Amhara region who heard about family planning had 0.565 times less likely to have unmet need, women in Oromiya region have who heard about FP had 0.452 times less likely to have unmet need for FP than women who did not heard about it. Similarly the overall women who heard about family planning had 0.519 times less likely to have unmet need for FP than the reference category.

4.10 General Discussions

Data from the EDHS indicate that fertility rates in Ethiopia declined very slowly and the level of fertility continues to be high. At an average of 5.9 births per woman, fertility far exceeds the 2.1 children per woman needed to maintain the population size over the long term. This rapid rate of population growth is exacerbated by the fact that one out of three births in the country is

unplanned. The use of contraceptive is one and the most way of minimizing the unplanned births and the size of the family. In developing country such as Ethiopia the use of contraceptive among women is less (14.7%) and it is influenced by several factors. The results of the analysis make it evident that contraceptive use in Amhara and Oromiya regions of Ethiopia is influenced by a number of demographic and socio-economic factors, and that supply related indices of family planning program are crucial in increasing the likelihood of contraception.

The factors affecting contraceptive behavior of currently married women in Amhara and Oromiya regions of Ethiopia were investigated in this study. The analysis showed that most of the women had knowledge (92%) about at least one contraceptive method.

In the multivariate analysis, a number of explanatory variables were included in the analysis of contraceptive use. Of the seven explanatory variables that have been included in the analyses fertility preference, educational level, place of residence, employment status and heard about family planning are happen to be the most significant and consistent ones. The rest factors such as age of women, age at first marriage, ethnicity and religion appear to have significant effect on some contraceptive use and unmet need of the study areas separately.

4.10.1 Age of women

Age is an important factor in determining women characteristics of using family planning methods. It plays a significant role when considering contraceptive use. In the study, most of the women were at youngest age. Totally 49% of them are below age 30. The mean age of the women was 31. There was a significant relation between age of women and current and ever used of contraceptive in both regions as well as the over all samples.

Age differential in contraceptive use among currently married women were also significant (Mitra et. al., 1994). The study conducted on contraceptive prevalence in Indonesia showed that younger women were more likely to be currently using or have used contraceptive than were older women (Molyneaux, 1999). However the logistic regression analysis showed that age is not a significant factor that affects women's current use of contraceptive in both regions.

Except age group 20-24 in Amhara and 45-49 in over all, other age groups did not show a significant effect on ever used of contraceptive. Unmet need for family planning is related with women age. The study found out that it has a significant association between age of women and unmet need for FP and age also has a negative effect on unmet need for FP in over all women. Significant decreases in the age of currently married women who have an unmet need for contraception are observed.

4.10.2 Age at first marriage

Many researches showed that Ethiopian women married off at their earlier ages and it is also found the same in this study. In Ethiopia, the median age at marriage among women aged 25- 49 is 16.1 years, and 79 percent of them were already married by age 20 (EDHS 2005). Ninety five percent of women got married before 19 years old in Amhara region and 82% of Oromiya women got married less than 19 years old. In the bivariate analysis age at first marriage has been found significant only in Amhara region and it is compatible with logistic regression analysis in current use and unmet need for FP at age 15-24. Women who got married at younger ages were less likely to use contraceptive and had more unmet need for contraception. Some studies showed that women when they get married they want to have children soon so that they do not want to use contraceptive. The result of this study has well-matched with the above explanation.

4.10.3 Fertility preference

Those women who are currently married were asked whether they prefer to have another child or not and the study found that half of them wanted to have another child. Fertility preference is one of the factors which have an effect on women's reproductive history. It is found that there is a significant association between the fertility preference and the predicted variables. This variable is negatively associated with ever and current use of contraceptives. Those women who prefer to have another child were less likely to ever used and current use of contraceptive than those who do not another in both regions and as well as the overall women.

4.10.4 Number of living children

Total number of living children is one of demographic factor which determine the size of the family and a woman's fertility history. As discussed in chapter one in Ethiopia fertility rate is

high compare to other Sub Sahara countries. According to this study 60% of women in Amhara region had 1-4 children and mean number of living children was 3 moreover 55% of women in Oromiya had 1-4 living children and the mean was 4.

According to this study the factor did not have that much effect on women's use of contraception. There had a significant relation with current use of contraceptive only in Oromiya region and significant associated with current use, ever use and unmet need for FP in over all women in bivariate analysis. Those women who have six and more children were more likely ever used of contraceptive than who have fewer children.

4.10.5 Educational level

This study, in line with several other studies, found that education is one of the most socio economic factors that had a strong effect on women knowledge of contraception method and her preconception about family planning. More than half of the women had no formal education (85% of women in Amhara and 77% of women in Oromiya). Women who were literate used contraceptive more than none educated women. According to the bivariate analysis education had a positive effect on current, ever used and unmet need for FP in both regions as well as on the over all samples. Those women who are literate were found to be more likely to current and ever use any contraceptive methods. On the other hand women who are more educated were less likely to have unmet need for contraception. These finding are supported by the result of Mohamood and Dure-e-Nayab (2000) which shows that level of education of women result into less number of children. Koc (2000) also found that a positive association between the educational level of women and the use of contraceptive methods in Turkey.

4.10.6 Place of residence

Women who live in urban areas have more opportunity to get better facilities and accesses in information, communication and education than rural women. The influence of place of residence also has seen on women use of contraception and unmet need for family planning methods. As expected, rural women are significantly less likely to be using contraception and ever used of contraception than women who reside in urban areas. This factor had also a negative

effect on unmet need for FP. Women who live in urban areas showed less likely to have unmet need for contraception.

4.10.7 Ethnicity

In Ethiopia there are about 85 ethnic groups. Oromo and Amhara ethnic groups contain the majority people. However as the analysis indicated it is not as such an important factor to determine women's use of contraception. The regression result revealed that Amhara women were more likely to current and ever used of contraceptive than other ethnic groups on over all women and less likely to have total unmet need for family planning methods.

4.10.8 Religion

Religious affiliations may impact on the use of contraceptives due to differing beliefs regarding birth control. Put this in mind religion in Ethiopia play an important role in every social and economic aspect. It is found from the survey that religion difference had an impact on women contraceptive use. Most religions believe that using birth control is not allowed according to their Holy Scriptures. Only 15% of all women who followed certain religion use contraceptive and more than half of the women follow the Orthodox religion. It is found that religion has significant association with contraceptive use. Those women who follow Orthodox religion were less likely to use contraceptive than other religion.

4.10.9 Employment status

As the country is a developing country most of the people are unemployed. The unemployment rate of the country is very high relatively to other African countries. Among the selected currently married women those who are currently working are only 27%. It implies that two third of the women are unemployed at the time of the survey. Employment status is also one of the important factor that affect women's life standard and attitude. Women who are currently working had less unmet need for contraception (36%). The regression result revealed that employment status was significant with current use of contraceptive in Amhara and overall regions. Those currently married women who were currently working were more likely to use ever and current contraceptive. The negative association between unmet need and employment

status confirmed that women who were employed are less likely to have unmet need for family planning methods in Amhara region and the over all samples.

The above result is supported by the previous study which revealed the impact of economically active women on the contraceptive use (Hakim 2000 and Fikree et al, 2001). The possible explanation for this relation is may be the employed women contribute to the household income and also raises the autonomy of women and it leads into the high use of contraceptive and less unmet need of FP methods.

4.10.10 Heard about family planning

Mass media are a gateway to new ideas and a source of important health information. As expected, urban residents have far more exposure to mass media than rural dwellers especially women. Women who heard about family planning were much more likely to current and ever used of contraceptive than those who had no sufficient information about FP. The result has figured out that women who did not heard about FP from any mass media were less likely to have total unmet need for family planning methods.

CHAPTER FIVE
CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter is the last chapter which contains two sections. The first section explains the main findings of the result from chapter four. The last section is talk about recommendation which provides fundamental suggestions and opinions in order to improve and enhance the use of contraceptive within the regions and the country as well.

5.2 Conclusion

This study was conducted among currently married women of reproductive age group in two regions of Ethiopia to explore factors influencing use of contraception. The purpose of this study is to examine and investigate the underlying socio economic, demographic and family planning variables that play a crucial role in determining contraceptive use in the study area. In order to achieve the objectives of this study, secondary data of the EDHS 2005 was used. As the study focused on the two regions they were 2730 currently married women are included in the study.

The average age of these women were 31 and most of them reside in rural areas (91%). Almost half of them were belonged to Amhara ethnic group and followed the Ethiopian Orthodox religion. Seventy three percent of the respondents were not currently working. With respect to education and mass media exposure, 85% in Amhara and 77% in Oromiya were not educated and 62% of the respondents had no exposure to mass media.

Descriptive analyses, bivariate and multivariate methods of analysis were used in analyzing the use of contraception. Hence, the following conclusions are derived from the study results

- Overall, the findings showed that a very small percentage of currently married women in Amhara and Oromiya regions were currently using contraceptives (16.1% and 13.6% respectively).
- Nearly 60 percent of women in Amhara and 26 percent in Oromiya were married before the age of 15. Relatively, women who got married at their early age are more likely to use

contraceptive than women who got married at late age of their reproductive years in both regions.

- Women who already had at least one living children are much more likely to use contraceptives than those who had not. Moreover, currently married women who had more ever born are using contraceptive methods than those who did not ever have.
- It was also found that woman who desire and prefer to have additional children is less likely to use family planning methods.
- The results of the study also indicate that the majority of the women are illiterate and the CPR among these groups was much less likely to use contraceptive. Education provides an advantage to a woman in terms of wanting to use contraception, seeking information about contraceptives and knowing where to go to access contraceptive services when compared to a woman with no education.
- As expected, rural women are significantly much less likely to be using contraception than women who reside in urban areas of both regions.
- Although the level of knowledge of family planning appears to be high in the population under consideration. However the current prevalence rate is very low in the regions. It implies that having knowledge about contraceptive did not necessary mean to have high level of contraceptive use.

- Among those women in the regions the use of contraceptive is relatively higher in those who were currently working.
- Injectable is one of the most widely used birth control methods by those women who were currently using contraceptives. The result also shows that injectable is the most future preferred method by women of the regions.
- According to the reason not to use contraceptive methods, the need to have more children is the main reason followed by health concern and religious prohibited.

- High unmet need and high overall demand for family planning.
- The total unmet need for family planning methods decreases with age of women with indicating that the majority of women expressed a desire to space their children than limiting the number.

- The result also revealed as total unmet need for family planning is relatively much more likely with respect to uneducated, unemployment and rural resides women in the regions.
- Regarding to the regions use of contraceptive and unmet need for FP were determined by some demographic and socioeconomic factors. Fertility preference, educational level, place of residence, employment status and heard about family planning are important socio economic, demographic and family planning variables that determine contraceptive use and unmet need for FP in the study areas.

5.3 Recommendation

The population of Ethiopia is growing by more than two million per year. Especially the study areas are known in high rate of growth and it has serious implication for the country's long term development if it exceeds the rate of economic growth of the regions and the country as well. Individuals and couples need to be provided with more information and services to determine freely and responsibly the number and spacing of their children consistently with their needs, economic possibilities and aspirations.

From the result it is clearly reveals that women of the regions wanted to achieve their fertility preferences by offering less attention to practice contraception (high TFR and low CPR). This situation leads to the cause of high rates of unwanted fertility and population growth. One of the major forces in driving down the fertility rate is by increasing the contraceptive use among MWRA. A substantial increase in contraceptive use resulting in decline in fertility and ultimately population growth could occur if the independent variables are adjusted.

The results identify important factors affecting use of contraception in Amahra and Oromiya regions of Ethiopia. Education, employment status, fertility preference, place of residence and heard about FP in any media are the strongest and most consistent predictors of levels of contraceptive use, and appear to be strategies for promoting family change. It is generally assumed that having knowledge about contraception might encourage women to use contraceptives effectively. However results from the logistic regression models did not significantly support the hypotheses that women who know of at least one method are more likely to use contraceptives than women who know no method.

There are many policy issues that the government of Ethiopia need to consider if it wants to increase the use of contraceptive among women and as the same time to reduce the high levels of fertility. In Ethiopia women generally do not have power to take decision regarding their own lives. They do not have equal right to own land, to space and limit their childbirths; they need the consent of their husbands or partners to practice contraception, etc. The status of the women has ever being lower especially in rural areas. This is reflected in their educational attainment, participation in labour forces as well as in political sectors.

Based on the findings of the study, the following recommendations are forwarded to improve reproductive health and the related issues in the regions.

- The first action the government should take is to change the ideology and the attitude of the society concerning women's equity, equality and empowerment since it affects their day to day life.

- Illiteracy remains a burden for the major proportion of women especially in rural areas and the majority of women in the regions are illiterate. The findings of this study confirm the importance of women's education directly and indirectly influence on contraceptive use. Consequently, education is seen as a key determinant of the costs associated with fertility regulation. Education is expected to influence access to modern knowledge and new ways of life.

  Women's educational levels play a significant role in delaying the age of first marriage and creating better opportunities for employment. For that reason more educated women tend to have the knowledge and are motivated to use contraceptive methods.

  Women who marry early tend to initiate childbearing early, have a longer lifetime exposure to pregnancy, and have a large completed family size, compared to those who marry late. Enhance the awareness of women how it improves the life of both children and their mother when increasing their age at first marriage. Afterward grant them with formal education to enhance their autonomy in changing their attitudes in favor of larger family sizes.

- Expand access to family planning services in rural areas and improve the use of contraception. Therefore expansions of infrastructures and accessible service providing facilities such as clinics, health care centers and hospitals have to be expanded in the regions. However, attention should also be given to reduce problems of fertility where it exists.

- Knowledge of those women about contraceptives is very high contrary to practice which is very low. It is generally assumed that having knowledge about contraception might encourage women to use contraceptives effectively. Women should be adequately informed about contraceptive methods, how and when to use such methods, where to obtain contraceptives, as well as the side-effects associated with specific contraceptive methods and their management.

  As a result there is a need to develop and implement program that encourage the involvement of women in family planning, and try to make contraceptive methods available and accessible at all level of the health facilities.

- One of the findings of this study shows that women's employment status is also has a strong effect on the use of contraception in the regions. Generally work is an important factor that provides women with more autonomy. Women who were more likely to use contraceptive was the ones who were currently employed. Therefore, this finding suggests that the Governmental and Non Governmental organizations should create and provide great employment opportunities for women, so that they may get a chance to adopt themselves with new ideas and support the family with finance. By doing so, they can have better understanding about the use of contraception and can control unwanted pregnancies and as the same time will decrease fertility rate of the regions.

- In this study it is found that effect of exposure to any mass media to gain information about family planning on the use of contraception is an important factor. Mass media plays a crucial role in providing people information about family planning and health related issues. Taking this into account the Government of Ethiopia should take measure to transmit programs about FP through all available public media in providing the

community with health care services even in remote areas as the majority of the people live in rural areas. Materials that discuss about the use and type of contraceptives should be distributed through out the country.

- Assist women to involve in association and provide with health care providers to orient them about the importance of family planning. It is also help them to meet people to share ideas in different issues which in turn help them to gain knowledge to make valuable decisions about their lives.

- Unmet need for family planning is highest in the regions with highest fertility rates. The study identifies that education is an important factor in decreasing the probability of unmet need. So, women must be provided with general and specific education. Education increases their knowledge so that they can choose the most effective method and use it appropriately. Besides that the government should improve the availability of family planning information and services especially in rural areas where the unmet need is relatively high. Understanding and meeting these unmet needs can protect the lives and health of women and their children and help build healthier and more productive populations, with maintaining the population growth rate.

- The study also indicated that married women aged 15-19 have a high unmet need for family planning methods. Focus has to be made to reach these specific groups to satisfy their contraceptive demand for spacing and limiting.

Since this study includes only married women as study subjects, conducting a research including those sexually active and unmarried women on FP service utilization both in the study area and in other parts of the country is recommended. Finally, it is better to conduct further research that clearly focuses on gaining a better understanding of other unexplained variables in the model.

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Appendix I

DHS Questionnaire

(Only include questions that were used in this study)

Socio - Demographic characteristics

1. Region

- Urban/Rural

2. How old were you at your last birthday?

- Age in completed years

3. What is your Religion
4. What is your Ethnic group
5. Have you ever attended school?
6. What is the highest level of school you attended?
7. Do you listen to the radio almost everyday, at least once a week, less than once a week or not at all?
8. Do you watch television to the radio almost everyday, at least once a week, less than once a week or not at all?
9. Are you currently employed?

- Yes
- No

Reproduction

10. Have you ever given birth?

11. Do you have any sons or daughters to whom you have given birth who are now living with you?

12. How many sons and how many daughters live with you?

13. Do you have any sons or daughters to whom you have given birth who are alive but do not live with you?

Contraception

1. Which ways or methods have you heard about?
   - Female sterilization
   - Male sterilization
   - Pills
   - IUD
   - Injections
   - Norplant or implant
   - Condom
   - Female condom
   - Diaphragm
   - Rhythm
   - Withdrawal
   - Emergency contraceptives
   - Abstinence
   - Lactational amenorrhea
   - Foam and jelly
   - Periodic Abstinence (Rhythm)
   - Other methods

2. Have you ever used anything or tried in any way to delay or avoid getting pregnant?
    - Yes
    - No
3. Are you currently doing something or using any method to delay or avoid getting pregnant?
    - Yes
    - No
4. Which method are you using?
    a. Female sterilization
    b. Male sterilization
    c. Pills
    d. IUD
    e. Injections
    f. Norplant or implant
    g. Condom
    h. Female condom
    i. Diaphragm
    j. Rhythm
    k. Withdrawal
    l. Emergency contraceptives
    m. Abstinence
    n. Lactational amenorrhea
    o. Foam and jelly
    p. Periodic Abstinence (Rhythm)
    q. Other methods
5. Were you ever told by a health facility/family planning worker/ reproductive health agent about other methods of family planning that you could use?
    - Yes

- No

6. Do you know of a place where you can obtain a method of family planning?
    - Yes
    - No
7. Did any staff member at the health facility speak to you about family planning methods?

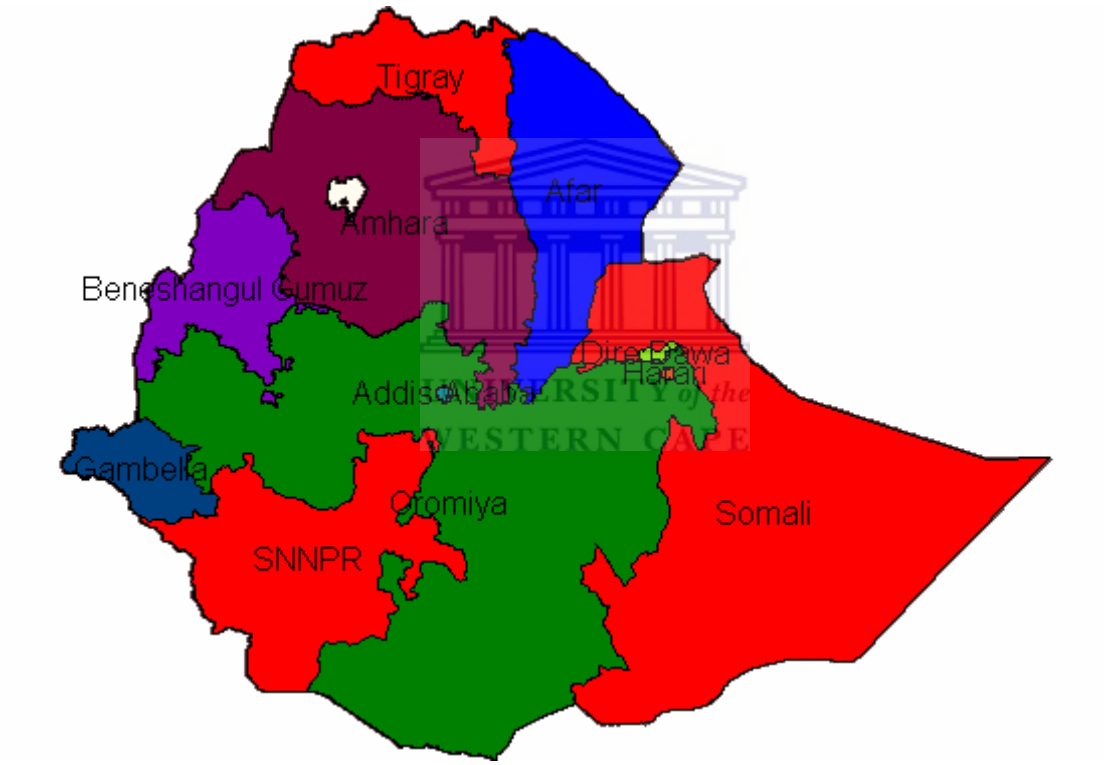
    - Yes

    - No

8. Do you think you will use a contraceptive method to delay or avoid pregnancy at any time in the future?
9. Which contraceptive method would you prefer to use?
10. What is the main reason that you think you will not use a contraceptive method at any time in the future?
11. In the last few months have you heard about family planning?
    - On the radio?
    - On the television?
    - In a newspaper or magazine?
    - In a pamphlet/poster/leaflets/booklets?
    - At a community event?

Appendix II

MAP OF ETHIOPIA



Amhara Oromiya