

**Factors influencing use of family planning  
in women of age 15-49 years  
in Oromia region, Ethiopia**

A detailed analysis based on  
2011 Ethiopian Demographic and Health Survey

**Tsehaynesh Assefa Workneh  
Ethiopia**

49<sup>th</sup> International Course in Health Development  
September 19, 2012 – September 6, 2013

KIT (ROYAL TROPICAL INSTITUTE)  
Development Policy & Practice/  
Vrije Universiteit Amsterdam

**Factors influencing use of family planning in women of age 15-49 years in Oromia region, Ethiopia**

A thesis submitted in partial fulfilment of the requirement for the degree of Master of Public Health

By: Tsehaynesh Assefa Workneh, Ethiopia

Declaration:

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The thesis **Factors influencing use of family planning in women of age 15-49 years in Oromia region, Ethiopia** is my own work.

Signature 

49th International Course in Health Development (ICHD)

September 19, 2012 – September 6, 2013

KIT (Royal Tropical Institute)/ Vrije Universiteit Amsterdam

Amsterdam, The Netherlands

September 2013

**Organised by:**

KIT (Royal Tropical Institute), Development Policy & Practice

Amsterdam, The Netherlands

In co-operation with:

Vrije Universiteit Amsterdam/ Free University of Amsterdam (VU)  
Amsterdam, The Netherlands

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## **Acknowledgement**

First of all, I praise the Almighty God for giving me all the strength and help for the successful completion of the Kit programme.

I would like to extend my special thank to The Netherlands Organization for Internal Cooperation in higher education (NUFFIC) for providing me scholarship to attend Master's of public health program.

My sincere gratitude goes to my adviser and back stopper for their invaluable comments and continuous evaluation of my thesis.

I would like to extend my sincere gratitude to Ethiopian Central Statistics Agency (CSA) that provided me Demographic health Survey data (EDHS 2011) needed for my thesis.

I would also like to extend my respectful acknowledgement and gratitude to all KIT staff and my colleagues of 49<sup>th</sup> (2012-2013) ICHD students for wonderful and unforgettable time I had with them in the past one year.

My special thanks goes to all my Ethiopian friends for their encouragement and moral support.

Finally, I am very thankful to my husband Mr. Abayou Sitotaw, my mother, Mrs. Mamite Beyene and My mother-in-law Mrs. Aberash Wodaje for their unconditional love, unreserved support, regular pray and caring of my kids

## List of abbreviations

AHWO	African health workforce observatory
CPR	Contraceptive prevalence rate
CSA	Central statistics agency
EDHS	Ethiopian demographic health survey
EARHN	East African reproductive network
FGAE	Family guidance association of Ethiopia
FP	Family planning
FDRE	Federal democratic republic of Ethiopia
GDP	Gross domestic product
GER	Gross enrolment rate
GOE	Government of Ethiopia
GP	General practitioner
HCW	Health care workers
HC	Health center
HEW	Health extension worker
HH	House hold
HO	Health officer
HP	Health post
HRH	Human resource for health
HSDP	Health sector development plan
IUD	Intra uterine device
IEC	Information education and communication
LAPMs	Long acting and permanent methods
MSIE	Marie Stopes international Ethiopia
MDG	Millennium development goal
MOH	Ministry of health
NER	Net enrolment rate
NPP	National population policy
NGO	Non-governmental organization
OECD	Organization for economic co-operation and development
ONRS	Oromia National Regional State
OR	Odds ratio
PI	Pathfinder international
PVtHE	Private health expenditure
RCT	Randomised control trial
RH	Reproductive health
SES	Socio-economic status
THE	Total health expenditure
TFR	Total fertility rate
TV	Television
UNDP	United nations development programme
UNFPA	United nations population fund agency
USAID	United States Agency for International Development
WHO	World health organization



## Definition of terms

1. Family planning (FP) is defined as the ability of individuals and couples to anticipate and attain their desired number of children and the spacing and timing of their births. It is achieved through the use of contraceptive methods and the treatment of involuntary infertility (WHO 2012a)
2. Modern family planning methods: female and male sterilisation, the pill, the IUD, injectables, implants, male and female condoms, lactational amenorrhea method, emergency contraception, and the standard days method (CSA 2012)
3. Traditional methods: periodic abstinence (or rhythm) and withdrawal (CSA 2012)
4. Implanon: is a one-rod, progestin-only sub dermal contraceptive implant that provides three years of highly effective pregnancy prevention (FHI 2013).
5. Unmet need for family planning: women with unmet need are those who are fecund and sexually active but are not using any method of contraception, and report not wanting any more children or wanting to delay the birth of their next child (WHO 2013)
6. Perceived need: "How people view their own general health and functional state, as well as how they experience symptoms of illness, pain, and worries about their health and whether or not they judge their problems to be of sufficient importance and magnitude to seek professional help" (Anderson 1995).
7. Evaluated need: "Represents professional judgment about people's health status and their need for medical care." (Anderson 1995).
8. Health beliefs: Attitudes, values, and knowledge that people have about health and health services that might influence their subsequent perception of use of health services (Anderson 1995).
9. Contraceptive prevalence rate: is the percentage of women of reproductive age who are currently using, or whose sexual partner is currently using, at least one contraceptive method, regardless of the method used (WHO 2012).
10. Social marketing: is a strategy that promotes, distributes, and sells contraceptives at affordable price through existing commercial channels.
11. Geographic accessibility: the physical distance or travel time from service delivery point to the user (Peters et al. 2008).
12. Availability: having the right type of care available to those who need it, such as hours of operation and waiting times that meet demands of those who would use care ,as well as having the appropriate type of service providers and materials (Peters et al. 2008).
13. Financial accessibility: the relationship between the price of services (in part affected by their costs) and the willingness and ability of users to pay for those services, as well as be protected

from the economic consequences of health costs (Peters et al. 2008).

14. Net enrolment rate (NER): is the ratio of children of the official primary school age group who are enrolled in primary school to the total population of the official primary school age (World Bank 2013).
15. The gross enrolment ratio (GER): is the share of children of any age that are enrolled in primary school

## **Abstract**

**Introduction:** Family planning (FP) improves family health and plays a key role in reducing maternal morbidity and mortality. Despite this fact the contraceptive prevalence rate in women of age group 15-49 years and currently married women are 20% and 29% respectively. Understanding of factors that are associated with low FP use will help to address the problem.

**Objective:** to identify and analyze factors associated with low use of family planning among women of age group 15-49 years in Oromia region.

**Methodology:** Literature review and analysis of 2011 Ethiopian demographic health survey. The analysis comprised of a weighted sample of 4522 women of reproductive age in Oromia region.

**Results:** The contraceptive prevalence rate of women of age group 15-49 years is 24.6%. Injectable is the most widely used method. Being not married, breast feeding, fear of side effects and religious prohibition are some of the reasons why women are not using FP. Young women 15-24 years are 6 (OR=6.25, 95% CI [3.1-13.4]) times more likely to use FP as compared older women (45-49 years). Those women with primary and higher education are 1.5(OR=1.49, 95% CI [1.1-2.01]) and 3.5 (OR=3.45, 95%CI [1.56-7.65]) times more likely to use FP as compared to those who have no education. FP use is 4(OR=4.2, 95% CI [2.57-6.85]) times higher in married women as compared to their non-married counterparts. FP use is also associated with socioeconomic status, number of living children and partner discussion. Service availability and accessibility, health care worker attitude and cultural norms are also influencing factors for FP use,

**Conclusions and recommendations:** Though the issue of FP was mentioned in both health and national population, reproductive health strategic plans and in health sector development plans, FP use remains low. So, strong government commitment is required to empower women, involve religious leaders and males in FP issues and enforce the implementation of the available policies.

**Key words:** Family planning use, factors, Oromia and Ethiopia

**Word count:** 12,728

## **Introduction**

I am a nurse and I have experience working in the hospital and for a non-governmental organization. While I walk on the street I have seen homeless mothers with their kids. While I was working in the hospital I have seen many children dying every day. I am a live witness I saw many women die due to pregnancy and pregnancy related problems. Some of them said the pregnancy was not planned. I always ask myself why they die at this state of time. SO this thesis is an opportunity to find out why women are not using family planning methods either to limit or to space their child bearing.

The fast population growth of the country is always a concern to the government; from 1994 to 2007 the size of the population nearly doubled (39.9 to 73.9 million). It did not match with the usable resources of the country. Despite the fast growing population, utilization of family planning is still low in the country; the contraceptive prevalence rate is 20 and 29% for all women of age 15-49 years and currently married women respectively.

Understanding influencing factors for low family planning use will help to solve the problem. As more than one third (36%) of the population of Ethiopia are living in Oromia region, I believe that bringing a change concerning utilization of family planning in the region will have an impact in the country at large.

This thesis has six chapters. The first chapter presents the background information of the country and the study region. Chapter two describes the extent of the problem, justification, objectives and methodology of the study. Literatures will be reviewed in chapter three. Chapter four presents findings and discussions from data analysis. Chapter five discusses about the program and policy response and current intervention of the government to improve the family planning utilization. The last chapter presents the conclusion and recommendation of the study.

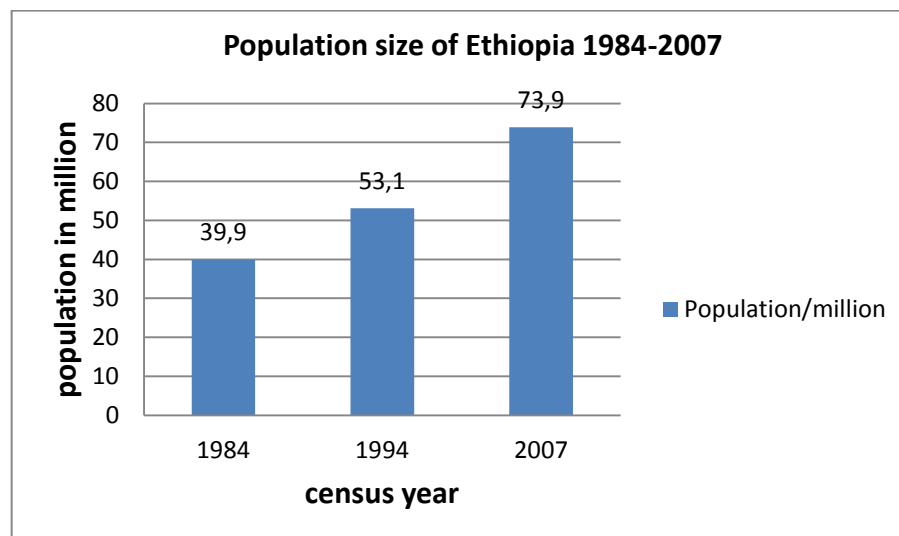
## Chapter 1: Background information about Ethiopia

This chapter gives a brief background information about Ethiopia in general and the study region Oromia, and as well as the health system and family planning (FP) service of the country.

### 1.1 Demography

According to Ethiopian 2007 population and housing census, the total size of the population was 73,918,505. Of these, 37,296,657 (50.5%) were males and 36,621,848 (49.5%) were females. As the successive years of (1984-2007) housing and population census revealed that the size of the population is increasing as it is shown below in figure 1 (CSA 2008). Based on the trend of the population growth the size of population in 2013 is projected to be 86,613,986 (CSA 2013). (Figure 1).

**Figure 1. Counted population size of Ethiopia (in millions), 1984-2007 (CSA 2008).**



The average annual national population growth rate was 2.6% between 1994 and 2007. The popular religions in the country are: orthodox (43.9%), Muslim (33.9%) and protestant (18.6%) Ethiopia is subdivided into nine administrative regions namely Oromia, Amhara, Tigray, Afar, Benishangul- Gumuz, Gambella, Southern Peoples, Somali, Harari and two city administrations; Addis Ababa and Dire Dawa. Oromia region consists of the largest proportion of the population (36.7%). About 87.6% and 12.4% of the population in the region lives in rural and urban places respectively. Annual population growth of the region is 2.9% between 1994 and 2007 (CSA 2008). **(See Annex 1, map of Ethiopia)**

### 1.2 Economy

In Ethiopia, agricultural sector accounts almost 50% of the gross domestic product (GDP) and has been a major source of economy. In addition 85% of the population are engaged in this sector (Ethiopia Economy 2012). Since 2004, the country has shown progress towards

annual economic growth. Despite this success there is no adequate employment opportunity for the youth (African economic outlook 2012). In addition the country's annual per capita income is 235 USD which is lower than the sub Saharan average (\$668). Dependency ratio on actively working age group; 15-64 years is 93 dependents per 100 persons (MOH 2010; UNDP 2012).

### **1.3 Education**

In Ethiopia educational attainment of women is less than male; in 2011 39% of female and almost half (49%) of males have some primary education. Women who never attended primary school have decreased from 67% in 2005 Ethiopian demographic health survey (EDHS) to 52% during 2011 EDHS while for male it has decreased from 52% to 38% (CSA 2012). The government put its effort to increase the number of schools and enrolment rate. As a result in 2009/2010 the gross and net primary school enrolment in the country is 95.9% (93% for female) and 89.3% (86.5% for female) respectively (MoFED 2010).

### **1.4 Health status**

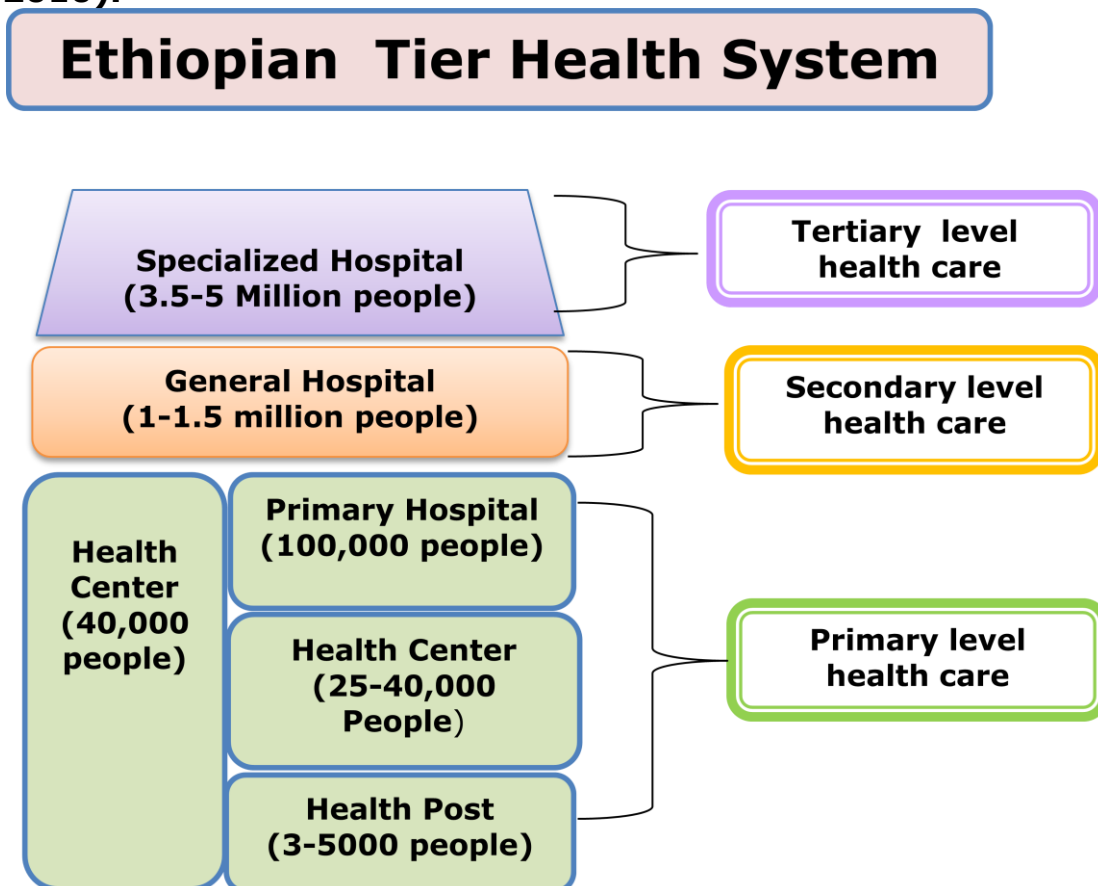
The life expectancy at birth is 55 years; 54 years for male and 57 years for female (MOH 2010/2011). Maternal and child health are part of the core performance indicator of health sector development plan (HSDP)(MOH 2010). Maternal mortality ratio is 676 deaths per 100000 live births and infant mortality rate is 59 deaths per 1000 live births. (MOH 2010).

### **1.5 Health system**

The country's health policy was issued in 1993. The main focus of the policy was access to the basic package of the primary health care service by all of the population. In order to achieve the objective of the policy, the government has developed a 20 year health sector development plan which is being implemented over a series of a five year plan(Center for national health development in Ethiopia).

Currently Ethiopia is following a three-tire health care delivery system. The first level is district/woreda health system which comprises of primary hospitals which covers 100,000 populations, health center to cover 25,000 populations and health post to cover 5,000 populations. The second level is general hospital and third level specialised hospital to cover one million and five million population respectively (MOH 2010). (Figure2).

**Figure2. Ethiopian health service delivery arrangement (MOH 2010).**



Like other low income countries, lack of human resource for health (HRH) has been an issue in the health system. Nationally there are about 66,314 health care worker (HCW) working all over the country; 0.84 health worker per 1000 population. This figure is far behind the WHO standard which expects 2.3 HCW per 1000 population. Despite the fact that more than a third of the population lives in Oromia region, only 15% of physicians are working there (AHWO 2010).

### **1.6 Health care financing**

Ethiopian health service is financed from four sources. The federal and regional government, grants and loans from donors, non-governmental organisations (NGO), and private organizations (MOH 2010).

During the Abuja declaration in 2001, the heads of state have agreed to invest at least 15% of their annual budget to the development of the health sector (WHO 2011). However the total health expenditure (THE) as percentage of the GDP stood at 5% which is far below the agreement. The private expenditure on health (PVtHE) as percentage of THE is 42% (WHO 2013).

## 1.7 Family planning in Ethiopia

In Ethiopia, modern family planning was first introduced by a non-governmental organization (NGO) called Family guidance association of Ethiopia in 1966 (FGAE). Then public health facilities started to provide the service. Currently the service is provided in all public health facilities and it is free of charge (MOH 2011).

In 1993 the Ethiopian government designed a national population policy (NPP). The goal of the population policy was to address the problem of high fertility rate in order to decrease the high population growth. Reducing the fertility rate from 7.7 to 4.0 children per woman and increasing the contraceptive prevalence rate (CPR) from 4.0 to 44% by the year 2015 are some of the objectives of the policy (GOE 1993b). In 1996, the FMOH released the first guide line about family planning service (MOH 2011).

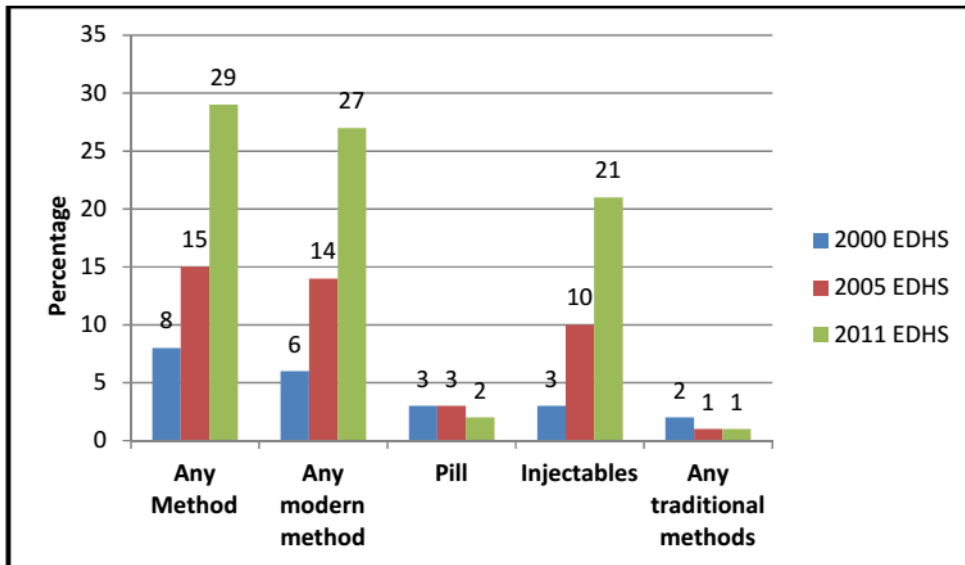
Prior launching of the population policy, government health facilities were not involved in FP service provision. The service was given by only FGAE and it was limited to one hospital. Then government facilities started to provide the service though the quality was poor due to lack of staff and FP supplies (Hailemariam, Alayu & Teller 2011).

According to 2011 EDHS, there are two types of family planning (FP) methods; modern and traditional. Modern FP methods are female and male sterilisation, pill, intrauterine device (IUD), injectables, implants, male and female condoms, lactational amenorrhea method, and emergency contraception. Whereas periodic abstinence (or rhythm) and withdrawal are two kinds of traditional FP methods (CSA 2012).

As it is indicated in (**Figure3**), the trend of contraceptive use is increasing in three consecutive surveys. However as stated in health sector development plan of Ethiopia (HSDP) IV, the targeted total fertility rate and contraceptive prevalence rate would be 4 and 65% respectively by the year 2015 which shows the achievement is far behind. And the unmet need for family planning also targeted to be reduced from 34% to 10% by 2015 (MOH 2010). It is also indicated in the graph that the most widely used method is injectable (21%) and others like implants, IUD, condom and other modern method make up a total of 5% (**Figure3**).



**Figure3. Trends in current use of contraceptives among currently married women 2000-2011 (CSA 2012)**



## **Chapter 2: Problem statement, justifications, objectives and methodology**

### **2.1. Problem statement and Justification**

Family planning is an important tool in fighting poverty. It helps women to involve themselves in labour force by delaying (spacing) child bearing. In addition when parents have limited number of children, it makes them to devote more resources in one child which contributes in improvement of family nutrition, education and living standard. Spacing of births and having fewer children also improves child survival (UNFPA). FP improves family health and plays a key role in reducing maternal morbidity and mortality as it can reduce the risk of unintended pregnancies and prevent unsafe abortion. As a result pregnancy and child birth related morbidity and mortality will be reduced.(WHO 2012a).

Globally in 2010 about 12% of women of age group 15-49 years of married or in union did not have access to or are not using an effective method while they want to avoid pregnancy(WHO 2013). The use of modern contraceptives has increased from 54% in 1990 to 57% in 2012. However in Africa it went from 23% to 24%. In low income countries, about 222 million women would like to delay or stop childbearing but they are not using any method of contraception (WHO 2012a). In addition, 1600 women and 10000 newborns die from every day due to pregnancy related complications. Of which low income countries took share of 99% of maternal death and 90% of neonatal death (WHO).

In Ethiopia the total fertility rate (TFR) is 4.8, which is higher than the total wanted fertility rate of 3.0 per woman and the unmet need for family planning (FP) among currently married women is 25%; 16% for spacing and 9% for limiting (CSA 2012). In 2011, according to the result of Ethiopian demographic health survey (EDHS), knowledge about contraception becomes universal; it was 98% in men and 97% in women. Despite the fact that universality of knowledge about FP; the contraceptive prevalence rate (CPR) for all Ethiopian women of age group between 15-49 years was 20 percent. The CPR for currently married women is 29 percent. (CSA 2012).

There is a regional disparity in CPR and unmet need. In Oromia region, in 2011 the CPR among currently married women was 26.2% which is lower than the national CPR. The unmet need for family planning in the region was 29.9%; 20.7 for spacing and 9.2 for limiting which is higher than the national level (CSA 2012). When it is compared to 2005 EDHS the CPR showed increment and unmet need showed decrement; CPR was 13.6% and unmet need for FP was 41.4%; 24.9 for spacing and 16.5 for limiting (CSA 2006).

Different studies revealed that there are different factors for the low utilization of FP. As Takele et.al, (2012) explained, the factors associated with low utilization of family planning were the number of times women had with their husband or partner discussing on FP, whether they have ever used any FP method and who is the main decision maker to use FP methods.

Although FP use and unmet need showed improvement in Oromia region, still the CPR is low and the unmet need for family planning is high in Oromia region. Therefore better understanding of the factors that are associated with low family planning helps to tackle the problem. This study will identify and analyze the contributing factors for low utilization of FP in the region and will provide recommendation to the responsible body.

## **2.2. Objectives**

### **2.2.1. General objectives**

The overall objective of this study is to identify and analyze factors associated with low family planning use among women of age group 15-49 years in Oromia region in order to give recommendation to the responsible bodies to improve FP use.

### **2.2.2. Specific objectives**

- To analyze individual related factors in women of age 15-49 which affect family planning use in Oromia region.
- To analyze service and family planning method related factors in women of age 15-49 which affect family planning use in Oromia region.
- To analyze policy related factors in women of age 15-49 years which affect family planning use on Oromia region.
- To make appropriate recommendation for action in order to improve intervention and programs dealing with family planning utilization in Oromia region.

## **2.3. Methodology**

Ethiopian demographic health survey (EDHS) is a national survey where nationally representative population was interviewed with the aim of provision of up-to-date information for planners and decision makers. It has been done three times in five years interval since 2000. For this study EDHS (2011) data, review of policy, strategy and other relevant literatures were used to analyze influencing factors affecting FP use in Oromia region.

### **2.3.1 Study population**

Women of age groups 15-49 years

### **2.3.2 Literature review**

Literature review was conducted based on Anderson (1995) conceptual framework. Journal articles, web pages, thesis, report and other materials were used to support the paper. The search was limited to those documents published within less than 10 years, relevant content, and full article and written in English. Data bases; google scholar and pubmed (that are accessed through KIT VU library) were used. Family planning use, education, income, number of living children, Ethiopia, Tanzania, Uganda and Kenya and a combination of these were used as search term. Most of the publications used in this paper were done in Ethiopian however publications from eastern African countries; Kenya, Tanzania and Uganda were also used as they all share similar demographic, social and political environment with Ethiopia (EARHN 2013).

### **2.3.3 Methodology of the national survey**

The survey was carried out under the ministry of health (MOH) and implemented by the central statistics agency (CSA). Representative samples were collected and analyzed nationally; 17,817 households (HH) were selected for the survey, of which 16,515 women and 14,110 men were interviewed successfully. It had three questionnaire; the HH, women's and men's questionnaires. As it is a national survey it covered wider range of issues and FP is one of the major issues covered by the survey. In the survey information on knowledge and use of FP methods and services and sources of information were collected from women of age groups 15-49 years. Family planning use was measured by method type, age and region nationally as whole.

### **2.3.4 Study design and sample size**

EDHS 2011 data was used for analysis. After receiving permission from CSA, the EDHS (2011) data were used for detailed analysis of influencing factors for the use of FP as these factors were not analyzed in the survey. As this study focuses on Oromia region, weighted sample of 6011 women of age groups of 15-49 years were drawn. Of these, only 4522 were included in the analysis by excluding those women who said they never had sex in order not to introduce selection bias.

The outcome variable for this study is women's current use of FP; for analysis purpose those who are currently using modern and traditional FP methods were categorized as "FP users" and those who are not using any of these methods categorized as "FP non-users". The independent variables included in this study (from the survey) are demographic factors such as age, marital status, religion, type of place of residence, and women's level of education. The socio-cultural factors are knowledge partner/husband education, working status of women, wealth index, desire for more children and number of living children. At last, sources of

FP information are radio, television (TV) and whether respondents were visited by FP worker in the last 12 months.

The wealth index is analyzed based on the HH assets and classified as poorest, poorer, middle, richer and richest. Desire for more children is classified as those who wants to have children with in 2 years, after 2 years and wants no more children.

### **2.3.5 Data analysis**

SPSS version 21 was used for data analysis. Frequencies were calculated to describe the back ground characteristics of women in the study region. Chi-square was calculated to determine the association between the outcome variable and an independent variable and to calculate the number percentage of FP user and non-users. In addition, univariate logistic regression was used by taking one independent variable at time to calculate unadjusted odds ratio (OR) and to see whether there is significant association between each category of the independent variables and outcome variables. All independent variables that have significant association at 5% were checked for multi co-linearity. Strongly correlated variables were excluded from the analysis; correlation coefficient greater than 0.6 and less than -0.6. At last step those independent variables that have significant association and those that are not correlated were put in to multivariate binary logistic regression model. Therefore independent variables that have significant association during multivariate analysis are considered as predictor variables for FP use. Literatures were used to compare and contrast findings from quantitative analysis. As all factors in the framework cannot be drawn from the analysis, those factors which are required but not covered in the analysis will be discussed under chapter 3 (the literature review section). Policy and strategy documents in relation to FP will also be reviewed.

## **2.4. Conceptual framework**

This thesis will be guided by Anderson's behavioural model of health services use (Anderson 1995). The model discussed the interaction of the environmental factors, population characteristics and health behavioural factors in the use of health services. Under the population characteristics there are three factors which affect the use of health service; classified as predisposing, enabling and need factors (Anderson 1995).

The predisposing characteristics are demographic factors (age and gender), social structure factors like education, occupation and ethnicity and health belief factors includes attitudes, value and knowledge of an individual that influence the use of the health services. The community and personal enabling factor should also be in place for use of the services. It includes availability of HCW and health facilities, means of how to get the service, income, and availability of insurance benefit,

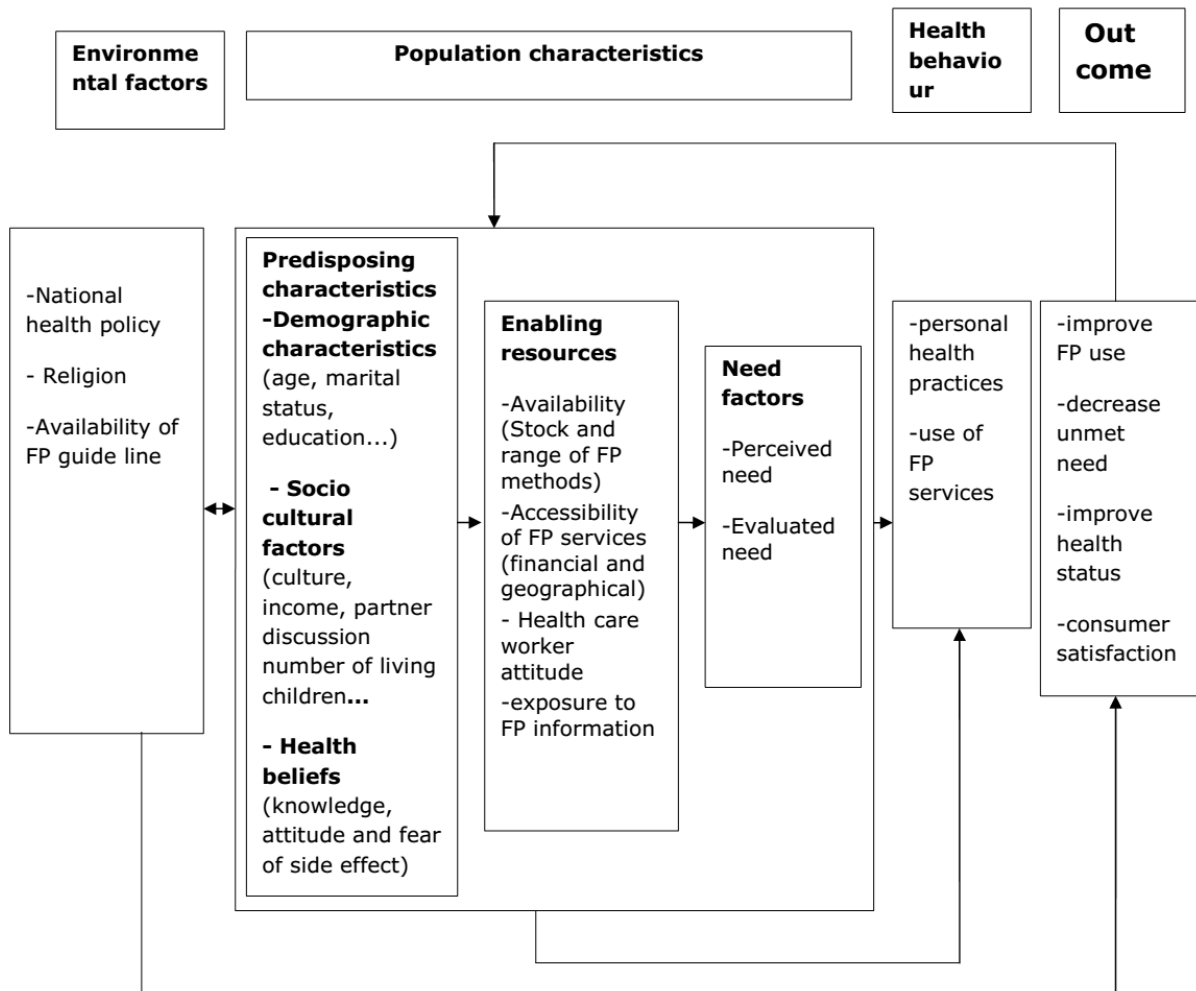
travel distances and waiting time. In addition understanding of medical care organization and social relationship are also important enabling factors for the use of the service (Anderson 1995).

Need factors help to urge individual to seek care and use the service immediately. It includes perceived need and evaluated need. Perceived need is how people see their own problem, illness and pain to judge whether to seek care. It helps to understand the health seeking behaviour of an individual whereas evaluated need happens after an individual go to the health facility to seek care. The later is based on the health professional judgment whether the person needs the care or not (Anderson 1995).

Environmental factors are national health policy, resources and their organization that are important factors which determine the use of the service by the population. The personal health practices such as diet and exercise have an impact on the health outcome of an individual by interacting with use of health services. Finally the health outcome is measured by consumer satisfaction and improvement of health status. The outcome in turn affects the predisposing and need factor (Anderson 1995).

The framework is modified in way to make it suitable to use for the analysis of factors influencing FP use in Ethiopian context. Under the environmental factor National health policy, religion and availability of FP guide line are included. The predisposing characteristics include demographic and socio-cultural factors and health belief. Age, marital status, women's Level of education, and place of residence are included in demographic factors. The socio-cultural factors consists of cultural norms, women's working status, wealth index, husband/partner level of education, partner support and discussion, number of living children and fertility desire are included. A health belief consists of knowledge about FP, attitude and misconceptions and fear of side effect. Availability and accessibility of FP services, HCW attitude and exposure to information are included under the enabling factor. Perceived need and evaluated need are included under the need factor.

**Figure4. Adapted Conceptual framework for discussing factors influencing use of family planning**



## 2.5. Limitations of the study

- The researcher could not analyze all influencing factors from the data as she is using secondary data.
- The researcher neither found indicators in DHS data nor in the literature that will help to analyze the need factor. It would have been much easier to get information if field work has been done as it needs qualitative data collection through in-depth discussion with the individuals.
- Issues related to FP are mentioned in the policy and development plan document, however it was difficult to find documents related to what has been done and what is being done (the government intervention) so as to understand whether the identified factors are either fully or partially tackled.

## **Chapter 3: Literature review**

### **3.1 Factors influencing family planning use**

In this section literature will be reviewed to explore existing factors influencing FP use in women of age 15-49 years. Environmental factors, predisposing characteristics, enabling and need factors will be discussed. To guide the literature review Anderson (1995) conceptual framework will be used.

#### **3.1.1 Environmental factors**

##### **National health policy**

During 1970 the health policy of Ethiopia gave emphasis to disease prevention and control which focused in rural areas. In 1993 the national health policy was formulated with main focus on intersectoral approach. The issue of health should not be seen in isolation from other sectors rather it should go hand in hand with others sectors. Information education and communication (IEC), control of communicable diseases, curative services, essential medicine supply and increasing human resource are some of the priority areas of the policy. In addition women and child health were given due emphasis. Decentralisation, development of preventive and promotive health care, equitable and acceptable health service, and intersectoral collaboration are some of the strategies to implement the policy. To promote family health, strengthening FP service and partner involvement are part of the strategies of the policy for optimal health of mother, child and family (GOE 1993a ).

##### **Family planning guide line**

The government of Ethiopia believes that improving the FP service could help to address MDG5; reduce maternal mortality and RH access by the year 2015 (MOH 2011). In order to expand and ensure quality of FP service provision, FMOH develop the first national FP guide line in 1966. In 2011, the guideline was revised by considering the constitution, policies, strategies and international treaties. Some of the objectives of the guideline are to use as a guide to all levels of HCW involved in FP service provision, to guide FP programmer, and to set a standard (MOH 2011).

Though the country has a FP guide line, appropriate implementation of FP guideline could not be assessed as there is no assessment done to on proper use of FP guideline.

##### **Religion**

A study from Kenya, religion was found to be the second most important determinant which affects FP use negatively. Women from catholic faith were less likely to use FP as compared to other religion. This is because the discouragement of FP use in catholic religion (Okech, Wawire & Mburu 2011a). However a study from Tanzania showed that those who are



Catholics are more likely to use contraceptives and the association was statistically significant (Tengia-Kessy & Rwabudongo 2006). Though people are from the same religion, they have different thoughts about FP use.

In a study which analyzed the Perceptions and behaviour related to family planning in a rural area in the Oromia region, both Orthodox Christian and Muslim participants believed that the timing to give birth is determined by God. So FP use is breaking the laws of God (Ieda 2012).

These results show that the issue of religion is more contextual. In addition as it is the most sensitive area for intervention, it needs an in-depth analysis.

### **3.1.2. Predisposing characteristics**

In this section demographic and socio-cultural factors and health beliefs that influence use of FP will be discussed.

#### **3.1.2.1 Demographic factors**

##### **Age**

In one study Ethiopia FP use decreases as the age of women increases above from 30 years. In addition there was a variation in the use of FP in different age groups. Women of age group 25-29 years were the highest user among the group. (Takele, Degu & Yitayal 2012). In this study the reason for decreasing FP use as the age of women increases was not mentioned. In reality, by the time women become above 30 they will have the desired number of children and FP use is expected to increase.

##### **Marital status**

A study on awareness and utilization of modern contraceptives among street women in North-West Ethiopia, there was significant association between marital status and FP use. Street women who are sitting near church and mosque, and those homeless women who are living on the sides of the road were interviewed. The result showed that married women were 3.5 times more likely to use FP as compared to their non-married counterparts (Megabiaw 2012).

In another study on contextual influences on modern contraceptive use in six countries of sub Saharan African countries, in Tanzania higher use of contraceptive use was seen in never married women. They are almost 4 (OR=3.38) times as likely to use FP as compared to their married counterparts and the association was significant (Stephenson et al. 2007). The possible reasons for this were not discussed in the study. The situation there might favour never married women them to use the service freely.

## **Women's level of education**

A study in Ethiopia showed that Women's literacy is associated with an increase in use of FP (Tilahun et al. 2013). In another study that explores women's education and modern contraceptive Use in Ethiopia, Family planning use differs from those who did attend and did not attend school. Study result revealed that 80% of women who have attended and 56% of women who have not attended school have used family planning (Gordon et al. 2011).

When the level of women's education increases FP use also increases. Fifty percent of women who have attended primary and 65.3% of women who have attended secondary school were using FP and the association was significant (Beekle & McCabe 2006). All study results showed that how girls' and women's enrolment in formal school is an important factor for FP use.

### **3.1.2.2 Socio-cultural factors**

#### **Income**

Higher income of women enables them to have control over resources, to access health care, information and to participate in decision making (OECD 2012). A study from Kenya which analyzed contraceptive Use among Women of reproductive age, the result revealed that women's income was significantly associated with FP use. Those women who have their own income are more likely to use FP as compared to those who do not have their own income (Okech, Wawire & Mburu 2011a)

#### **Cultural norms**

In a study of the influence of perceptions of community norms on current contraceptive use among men and women in Ethiopia and Kenya, the result showed that preference to have a son is associated with contraceptive use as it has a connection with the social status. The number of male children that the women have; if they think it is fewer than the community's ideal number of sons, they are less likely to use FP (Dynes et al. 2012).

In another study of perceptions and behaviour related to family planning in a rural area in the Oromia region, Ethiopia, sex preference of parents makes them to seek another child till the required composition of sex is fulfilled. When parents have more female children than male, they are not likely to use FP methods. They believe that male children do take care of their parents when they become old as they think that male children are still part of the family members even after marriage. In addition, a male child is mandatory in order to inherit their property to their male child. In addition, parents need their name to exist after they passed away and they believe that this is what they prefer to have many children who can hold their names (Ieda 2012).

The idea of having more male child than female child will prohibit parents from using FP. In addition it contributes to gender discrimination since birth and will lead to gender inequality.

Belief about keeping virginity till marriage is also an obstacle to use FP. A study from Uganda, young people recount obstacles and enabling factors to use of contraceptives stated that cultural norms like keeping virginity till marriage is a barrier to use contraceptives. Societies expect young people to be virgin till they get married so parents do not discuss this issue with their children (Nalwadda et al. 2010). This societal belief of keeping virginity will have influence in valuing of it among females. A study from Ethiopia showed that the traditional norm of keeping virginity was more likely to be believed by female respondents as compared to male respondents (Molla, Berhane & Lindtjorn 2008).

The issue virginity till the day of marriage could youth to go for FP as it will not be accepted by the society while they are practically sexually active. As a consequence they will go for unsafe abortion due to unintended pregnancy. In general the cultural norm attached to societies influence women's use of FP. In order to bring a change a series of community conversation will be needed as bringing a behavioural change takes time.

### **Fertility desire and number of living children**

In a study which analyzed influencing factors Women's Intention to Limit Child bearing in Ethiopia, in older women as the number of surviving children increases, women's desire to have more children will decline (Dibaba 2008; Bhargava 2006). In another study when the number of living children increases the women's chance of using FP will increase. Based on their analysis, Women who had 3 to 4 children and 5 or more were 3.7 times and 7.4 times more likely to use family planning than who had no children (Gizaw & Regassa 2011).

### **Husband/Partner education**

In a study of determinants of low FP use and high unmet need in Butajira district, Ethiopia it is found that the partner's educational status and FP use of women have positive association. Those women whose husband/partners have primary and secondary education; the odds of use of contraception was 1.32 and 1.5 times higher among married women as compared to those whose partners are uneducated and the association was significant (Mekonnen & Worku 2011). In another study again husband education was found to have a significant association with FP use (Berhane et al. 2011; Kebede 2006). Husband education increases communication between couples.

## **Partner discussion and approval**

In one study of FP practice and related factors of married women in Ethiopia, the result demonstrated that partner/husband discussion had association with FP use. Those women who had more frequent discussion about FP with their husbands were 11 times more likely to use FP than those who had no discussion (Ko et al. 2010). Similarly association of FP use and partner discussion was also seen in other study in Ethiopia (Stephenson et al. 2007).

In another study which analyzes the role of men in use of contraceptive use and fertility preference in southern Ethiopia, the result showed that 90% of respondent approved FP use of their spouse (Tuloro et al. 2006). According to Okech et al (2011), the use of FP is much higher in those whose husband's has consented than those who are not. The probability of using FP in those women who gets their husband's consent is 83% when it is compared to those who do not get consent. So this shows that how men play a great role on family planning use. Their involvement will have an important contribution in a country like Ethiopia where the family system is patriarchal and is dominated by them (MOH 2011).

### **3.1.2.3 Health beliefs**

#### **Knowledge about FP**

In one study FP knowledge, attitude and practice among married couple in Ethiopia, the result demonstrated that knowledge of FP among women was 94% but this high knowledge did not bring high utilization of FP. Though they have knowledge about it, they had another issue for not using it; fear of side effects and desire to have another child were mentioned by the respondents (Tilahun et al. 2013). Unlike the above study, in another study which analyzes factors associated with utilization of long acting and permanent contraceptive methods (LAPMs) among married women in Mekelle town, having knowledge about those methods are associated with the use of LAPMs (Alemayehu, Belachew & Tilahun 2012). Though the possible reasons were not mentioned in the study, there could be other factors for example 84.5% of married women had formal education which can have influence on socioeconomic status (SES) and partner communication.

#### **Attitude about FP**

In a study which analyzes the reproductive Health Knowledge and attitude among Adolescents in Ethiopia, participants were asked about six questions to assess their attitude towards adolescent service use. Their responses were ranged from completely agree to disagree and the result revealed that individuals attitude is an influencing factor in the use of health services (Tegegn, Yazachew & Gelaw 2008). We can see that individual's attitude towards the service use affects either positively or

negatively. Those who have positive attitude towards FP can utilize the service than those with negative attitude.

### **Fear of side effects and misconceptions**

Studies in Ethiopia showed that fear of side effects of contraceptives is one of the most frequently mentioned reason for not using FP (Megabiaw 2012; Mekonnen & Worku 2011). Either women did not receive the right information which causes what or she was not exposed to any FP information. Another study from Uganda on Persistent high fertility in Uganda: young people recount obstacles and enabling factors to use of contraceptives and a study from Tanzania on gender norms and FP decision making, the result revealed that respondents misconception about the use of FP were a barrier not to use it. They believe that the use of FP interferes with women's ability to reproduce and it predisposes to cancer, weight gain/loss and continuous bleeding (Schuleer, Roltach & Mukiri 2009; Nalwadda et al. 2010). Both factors could lead to low FP use unless they were told the right information about the advantages and disadvantages of FP use.

#### **3.1.3 Enabling resources**

In this section availability and accessibility of FP services and health care workers attitude will be discussed.

##### **Availability**

Availability means when an individual have the right type of care available and having the appropriate type of service provider (Peters et al. 2008). Frequent stock out of contraceptives and lack of skilled service providers limit the availability of the FP service in Ethiopia (USAID 2010b). In one study from Ethiopia, women were asked the reasons for not using FP, 43.1% of respondents replied unavailability of the preferred type of methods in the nearby facility (Mekonnen & Worku 2011).

In one randomized control trial (RCT) in Ethiopia; the intention of the study was to see whether linking of FP and credit service could bring a change in FP use. However the linking of the two (FP and credit) services did not bring in an increase in contraceptive use in the intervention group than in control group. According to their analysis the reason why the intervention did not bring a change was the community health care workers did not provide range of FP methods that the women needed; they provided the women with pills and condom only while their preference is injectables. (Desai & Tarozzi 2011). This shows FP use is influenced by availability of range of FP methods.

In Ethiopia, FP service is delivered starting from the community level to the level of referral hospital. It is provided by all range of HCW who have skill and training and FP (For detailed description of type of health facility and HCW including their job description see **Annex2**). However the country in general suffers from lack of skilled health workers and

specifically it has shortage of skilled manpower on FP. This is one of the reasons to the limited access to FP service (EARHN 2013 ; USAID 2010b).

In Oromia region, in 2009-2010 the density of health worker ratio including the recently trained health extension workers (HEW) per 1000 population is 0.73 which is less than both the national average (0.84 health worker per 1000 population) and WHO standard (2.3 health worker per 1000 population). Besides, there is a regional disparity in the distribution of health worker in the country. Despite the fact that the study region contains the largest share of the population, only 15% of general practitioner (GPs), 25% health officer (HO), and 25% of nurses are working in the region (**Table 1**). In the same year for instance the required number of GP was 508 but only 184 GPs were available, so there was a gap of 326GPs (AHO 2010).

**Table1 Health worker distribution in Oromia region in comparison with the national data (2009) (AHO 2010).**

<b>Professional category</b>	<b>GP</b>	<b>Specialist</b>	<b>HO</b>	<b>Nurses</b>	<b>Pharmacist</b>	<b>Pharmacy technician</b>	<b>Midwives</b>	<b>HEW</b>
<b>Oromia region</b>	184	194	448	5040	119	382	287	13000
<b>National</b>	1151	1001	1606	20109	632	2029	1379	30950
<b>Proportion in Oromia</b>	15%	19%	27%	25%	18.8%	18.8%	20.8%	42%

### **Accessibility of FP services (financial and geographical)**

Financial accessibility is also an important influencing factor to access and use health services. It consists of both direct and indirect cost. Direct cost is an expense which is paid for the service while indirect cost mean is an opportunity cost of time, transportation cost, and food (Peters et al. 2008).

In Ethiopia women have the right to access FP service either for free or with affordable price (MOH 2011). The government facilities are the main provider of FP service and it is provided for free. However, all other private providers charge a reasonable service charge. In both cases whether women go to public or private, they will incur opportunity cost; cost of food, transportation and time. In addition as the health facilities are concentrated in urban areas, those who live in rural areas have to pay more for FP services as compared to those who live in urban areas. In addition, financial dependency and multiple responsibilities of women prevent them from accessing the FP services.

Distance of health facility has a negative implication on the use of FP; when the facility is located far away from the place where women are living the likelihood of using the FP service is 3.3 lower than those who are living near the health facility (Okech, Wawire & Mburu 2011b). In the same manner in another study those who live in closer to the facility showed higher use of contraceptives. However the association was not statistically significant (Tengia-Kessy & Rwabudongo 2006).

In Ethiopia public facilities are the main provider of FP; 85% of injectables and 71% of pills are provided by them (USAID 2010a). Besides there are other NGOs working on the area. Family guidance association of Ethiopia (FGAE) is the first local NGO that has worked on FP since 1966. At its establishment it has started giving the service in a single room and now it is working all over the country (MOH 2011). The association has a total of 80 service outlets (clinics, mobile facilities and community based services) (FGAE 2012).

Pathfinder International (PI) is working to increase long term FP access to the community and in community sensitization in sensitive issues like early marriage. Oromia is one of the regions where PI is working (Pathfinder International 2012). Pathfinder International took the lead in FP service integration with HIV services. The program increases access to HIV positive individuals who either who wants to limit or space their child bearing. It conducted sensitization workshop and FP related training to HCW. In 2010 as it is evidenced from the review done in 68 FP/HIV integration supported sites 285000 individuals who come for voluntary counseling and testing (VCT) and 28000 ART clients were given the service (Pathfinder International 2011).

Marie Stopes International Ethiopia (MSIE) is also working with the government to increase access to FP through its own clinic and outreach programs to hard to reach areas. In addition it has also social franchising program with more than 200 private clinics (Marie Stopes International).

### **Exposure to family planning information**

Women's exposure to media (radio, TV and newspaper) has influence on chance of FP service utilization. Those women with no media exposure were 56.7% less likely to use FP service when compared to those who are exposed media FP message (Gizaw & Regassa 2011).

Stephenson et al(2007), in their study on contextual influences on modern contraceptives use in sub Saharan Africa, those respondents who had media exposure on FP issues were more likely to use FP than their counterparts who had no media exposure (Stephenson et al. 2007).

## **Health care worker attitude**

In one study which analyzed health workers' attitudes toward sexual and reproductive health services for unmarried adolescents in Ethiopia, health workers were asked about their attitude towards FP provision to unmarried adolescents. The result showed that almost half (46.5%) of the participants had negative attitude towards FP provision to unmarried adolescents (Tilahun et al. 2012). Health care worker attitude either positively or negatively affects the use of FP. When they show positive attitude women are more likely to use the service but when they show negative attitude it is unlikely that for adolescents to go for FP. As it is demonstrated in another study, the approach of HCW working in the FP has a direct effect in the use of FP services. The likelihood of women to use service was 19% higher in those HCW showed good attitude/friendliness than those HCW who were not friendly (Okech, Wawire & Mburu 2011b). So negative attitude of HCW discourages the use of FP as a result unwanted pregnancy and unsafe abortion will follow.

### **3.1.4 Need factors: perceived and evaluated need**

Perceived need represents "How people view their own general health and functional state, as well as how they experience symptoms of illness, pain, and worries about their health and whether or not they judge their problems to be of sufficient importance and magnitude to seek professional help" while evaluated need represents " professional judgment about people's health status and their need for medical care." (Anderson 1995). The first one explains about an individual's health seeking behaviour. The latter demonstrates about the clinical judgement after an individual is evaluated by the health professional which influences the use of health services and is dependent on health worker professional competency.

Perceived need is an important predictor to use the service. This is to mean even if an individual has the necessary conditions to use the service his/her health seeking behaviour matters a lot and it is affected by knowledge, income etc.



## Chapter4: Results and discussions of quantitative analysis

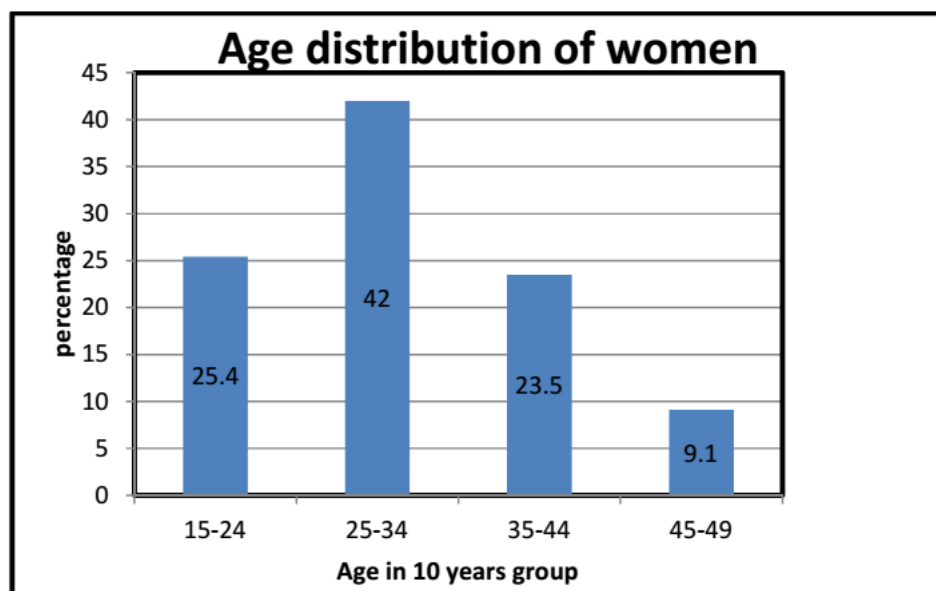
This chapter presents all findings and discussions from quantitative analysis.

### 4.1 Results of quantitative analysis

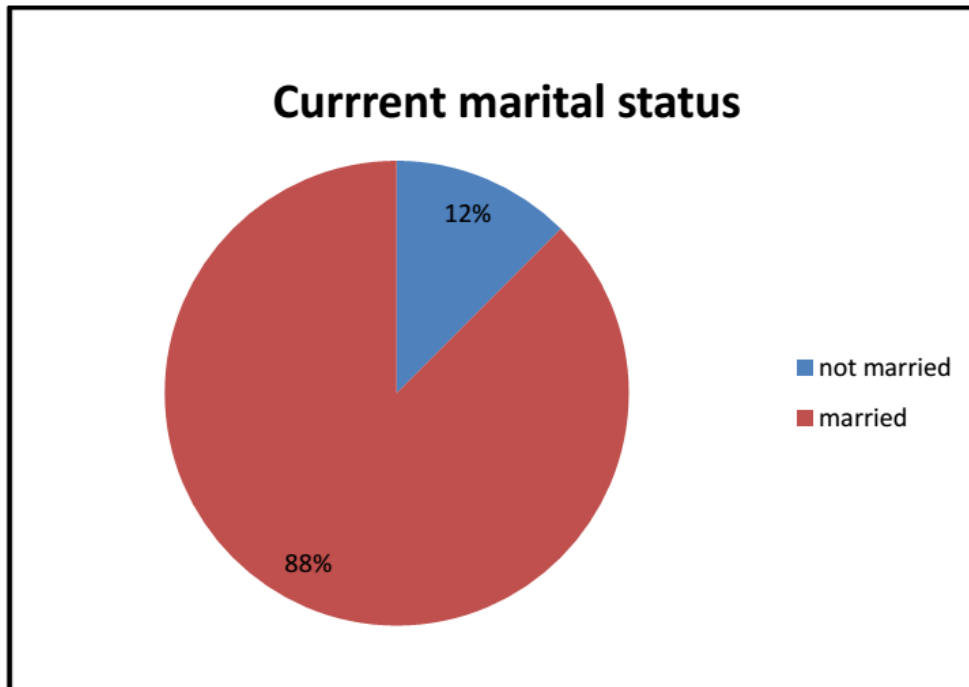
#### 4.1.1 Background characteristics of women of age 15-49 years

The mean age of the women of age group 15-49 years was 30.44 years and majority (42%) are in the age bracket of 25-34 years. More than half (62.2%) of the respondents do not have formal education and 31.1% have primary school. The first age of marriage in the region is 16.7 years. Their current marital status showed that 87.5% of women are currently married. Most of the respondents; 49.7% are Muslims followed by Orthodox which is 27.6%. Nearly 86% are living in the rural part of the region and their wealth index showed that 16.1%, 20.9% and 21.9% of the respondents are classified as poorest, poorer and in the middle segment respectively. Majority (47.4%) of the respondents have 1-3 children and 42.9% have 4 or more children. The diagrammatic representations of the respondent's socio-demographic characteristics are shown in **Annex3**.

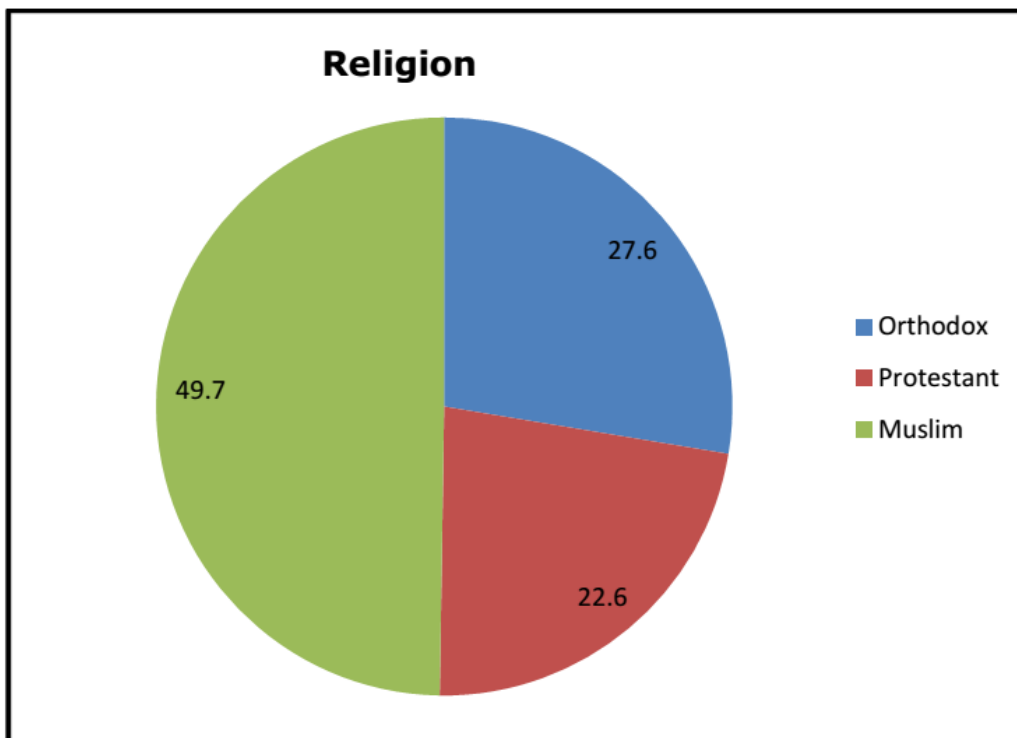
**Figure5. The frequency distribution of all women of age 15-49 years by their age in Oromiya region, 2011 (N=4522)**



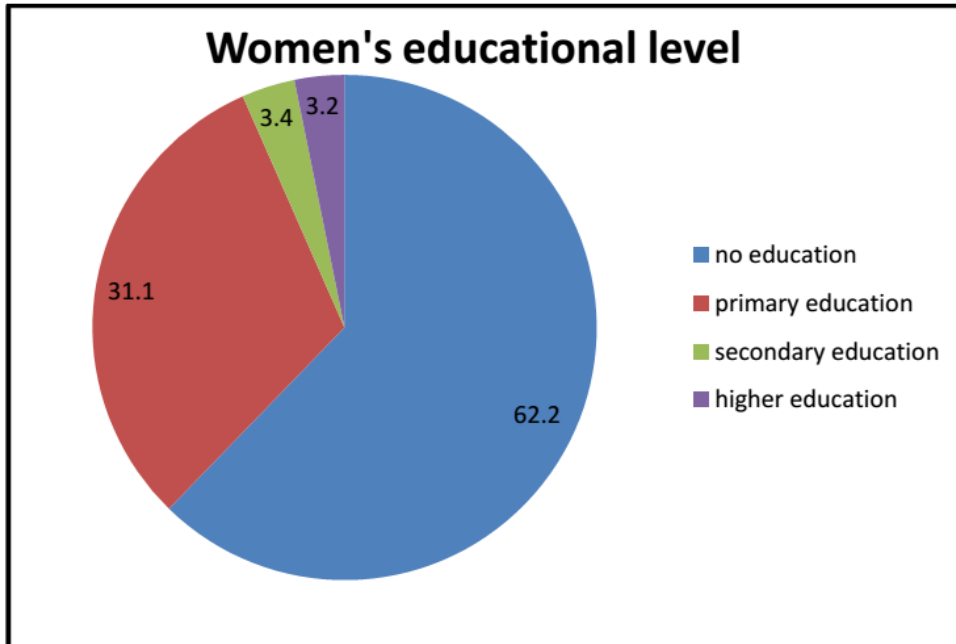
**Figure6. The frequency distribution of all women of age 15-49 years by their current marital status in Oromiya region, 2011 (N=4522)**



**Figure7. The frequency distribution of all women of age 15-49 years by their religion in Oromiya region, 2011 (N=4522)**



**Figure8. The frequency distribution of all women of age 15-49 years by their highest educational level in Oromiya region, 2011 (N=4522)**



#### **4.1.2 Current use of family planning methods by their type**

About 96.8% of women in Oromia region knew at least one method of contraception. Injectable is the most widely known method (94.7%), followed by pills (93.1%) and condom (72.3%). The least known methods are withdrawal (24.1%) and IUD (24.2%). Currently 24.6% of women are using contraceptives and the rest; 75.4% are not using any method of contraception. Injectable is widely used method (70.4%) followed by implants/Norplant (12.9%). Condom is being the least used among them (0.4%). **(Table2)**

NB: Percentage of current FP user are calculated out of the total reproductive age of women (N=4522) and out of the current FP user (N=1114). Percentage of users out of the current user was used in the text. In addition the sum of knowledge of each method did not sum up to 100% as women knows more than one method; they answer more than one method

**Table2. Percentage of knowledge of each method and current user among women of age 15-49 years in Oromia region**

<b>FP method type</b>	<b>Knowledge of each method (%), N=4522</b>	<b>Number of user, N=4522</b>	<b>Percentage of current user, N=4522</b>	<b>Percentage of current user, N=1114</b>
<b>Pill</b>	93.1%	94	2.1%	8.4
<b>IUD</b>	24.2%	10	0.2%	0.9
<b>Injection</b>	94.7%	784	17.3%	70.4
<b>Condom</b>	72.3%	5	0.1%	0.4
<b>Female sterilization</b>	37%	17	0.4%	1.5
<b>Periodic abstinence</b>	42.6%	50	1.1%	4.5
<b>Withdrawal</b>	24.1%	9	0.2%	0.8
<b>Implant/Norplant</b>	65.7%	144	3.2%	12.9
<b>Total</b>		1114	24.6%	99.8

Different reasons were mentioned by the respondent for not using FP methods. Majority (18.3%) mentioned that they are amenorrheic (post partum) followed by not being married (12.2%). Another 16% of respondents mentioned that they are not using due to fear of side effect. Another 11.3% believed that it is fatalistic and 11.5% of the respondent said they are breast feeding. In addition 9.4%, 8.5% and 5.2% mentioned not having sex, religious prohibition and husband opposition. Others mentioned that lack of access, knows no source and inconvenient to use. However in the survey no one mentioned unavailability of preferred method.

#### **4.1.3 Multivariate analysis results**

During univariate analysis except knowledge all predictor variables; age, education, wealth index, marital status, type of place of residence, husband education, desire for more children (whom they think need more children), working status, number of living children, exposure to sources of FP information were significantly associated with FP use. Detailed results of the univariate analysis are shown in **(Annex5)**. Variables that do not have significant association during univariate analysis and other correlated variables were excluded from multivariate analysis. Husband education was correlated with women's education and desire for more children was correlated with when to have for more children. So husband education and desire for more children were not included in the multiple logistic regression models.

#### 4.1.3.1 Predisposing characteristics

##### Table3: Demographic factors

Women of age group 15-24 are 6(OR=6.25, 95%CI [3.1-13.4],  $P<0.001$ ) times more likely to use FP as compared to women of age group 45-49 years and the association was significant. In addition women of age group 25-34 and 35-44 years are 4(OR=4.7, 95%CI [2.45-9.1,  $P<0.001$ ) and 3.8(OR=3.81, 95%CI [1.96-7.41],  $P<0.001$ ) times more likely to use FP respectively as compared to women of age group 45-49 years and in both cases the association is significant.

When the level of women's education increases FP use also increases. Women who have attended primary and higher education were 1.5(OR=1.49, 95%CI [1.1-2.01],  $P=0.008$ ) and 3.5(OR=3.45, 95%CI [1.56-7.65],  $P=0<0.001$ ) times as likely to use FP respectively as compared to their non-educated counterparts the association is significant. Unlike these, the odds women who have attended secondary education are 1.5(OR=1.57, 95%CI [0.77-3.2],  $P=0.211$ ) times as likely to use FP as compared to women who are not educated. But the association is insignificant.

Type of place of residence showed significant association during univariate analysis but when other predictor variables like age and wealth index are controlled the association was eliminated. Women who are living in urban area are 0.9(OR=0.98, 95CI [0.61-1.59],  $P=0.946$ ) times as likely to use FP as compared to those women who are living in rural areas and the association was not significant.

Marital status of women has positive association with FP use. Currently married women (including women living with partner) are 4(OR=4.2, 95%CI [2.57-6.85],  $P<0.001$ ) times more likely to use FP than their unmarried counterparts and the association is significant.

The highest proportion of use of FP was seen in those who are Orthodox Christian. Being an Orthodox Christian and Protestant are 3(OR=2.97, 95%CI [2.16-4.08),  $P<0.001$ ) and 2(OR=2.11, 95%CI [1.52-2.93],  $P<0.001$ ) times as likely to use FP respectively as compared to Muslims and the association was significant.

In summary the multivariate logistic regression model result showed that, age, women's education, marital status and religion are found to be predictor variables of use of FP.

**Table3. Multivariate analysis: demographic factors of women of age group 15-49 years with family planning use in Oromia region, 2011.**

<b>Independent variables</b>	<b>Total Number</b>	<b>% FP user</b>	<b>Adjusted OR(95%CI)</b>	<b>P-value</b>
<b>Age in 10-years groups</b>				
15-24	1149	316(27.5%)	6.25(3.1-13.4)**	0.000
25-34	1901	526(27.7%)	4.7(2.45-9.1)**	0.000
35-44	1061	237(22.3%)	3.81(1.96-7.41)**	0.000
45-49	412	35(8.5%)	1	
<b>Women's level of education</b>				
No education	2814	490(17.4%)	1	
Primary	1408	456(32.4%)	1.49(1.1-2.01)*	0.008
Secondary	155	75(48.4%)	1.57(0.77-3.2)	0.211
Higher	146	93(63.7%)	3.45(1.56-7.65)**	0.000
<b>place of residence</b>				
Rural	3879	821(21.2%)	1	
Urban	644	293(45.5%)	0.98(0.61-1.59)	0.946
<b>Current marital status</b>				
Not married	566	78(13.8%)	1	
Married	3957	1036(26.2%)	4.2(2.57-6.85)**	0.000
<b>Religion</b>				
Orthodox	1249	477(38.2%)	2.97(2.16-4.08)**	0.000
Protestant	1024	293(28.6%)	2.11(1.52-2.93)**	0.000
Muslim	2249	343(15.3%)	1	

**\*\*Statistically significant at P<0.001 & \* statistically significant at P<0.05**

#### **Table4: Socio-cultural factors**

Family planning use increases with higher SES. Women who are classified in poorer and middle wealth index are 1.75(OR=1.75, CI [1.05-2.9], p=0.031) and 1.77(OR=1.77, 95%CI [1.07-2.93], p=0.027) times as likely to use FP respectively as compared to those classified in the poorest wealth index. In addition women in the richer and richest wealth index are 2.8(OR=2.8, 95%CI [1.72-4.6], p<0.001) and 3.5(OR=3.53, 95%CI [1.92-6.48], P<0.001) times as likely to use FP as compared to those who are in the poorest wealth index. The association is significant at all levels of SES.

Among those women who said they are currently working (employed by employer), 32.6% are using FP which is higher than those who said they are not currently working (18.7%). The analysis result showed that respondent's working status has significant association with FP use. Those women who are currently working are 1.7(OR=1.68, 95%CI [1.29-2.19, P<0.001) times as likely to use FP as compared to their non-working counterparts.

The odds of women who wants no more children and who wants another child after two years are 2.6(OR=2.62, 95%CI [1.6-4.23], P=0.003) and 1.6(OR=1.62, 95%CI [1.03-2.54], P=0.039) times as likely to use FP as compared to those who wants to have another child within two years. The association in both cases are significant.

When women's number of living children increases FP use decreases. Women with 1-3 children and with 4 or more children; 30% and 20% of them are using FP respectively. Women with 1 to 3 living children and 4 or more children are 2.8(OR=2.83, 95%CI [1.63-4.92], P<0.001) and 2.3(OR=2.3, 95%CI [1.2-4.48], P<0.001) times as likely to use FP as compared to those who have no children. The association in both cases are significant.

In summary based on the multivariate logistic regression result wealth index, working status of the respondent, the timing on having more children and number of living children have association with FP use.

**Table4. Multivariate analysis: socio-cultural factors of women of age group 15-49 years with family planning use in Oromia region, 2011.**

Independent variables	Total Number	% FP user	Adjusted OR(95%CI)	P-value
<b>Wealth index</b>				
Poorest	727	73(10%)	1	
Poorer	944	167(17.7%)	1.75(1.05-2.91)*	0.031
Middle	989	188(19%)	1.77(1.07-2.93)*	0.027
Richer	1032	310(30%)	2.8(1.72-4.6)**	0.000
Richest	832	377(45.3 %)	3.53(1.92-6.48)**	0.000
<b>Respondent currently working</b>				
No	2610	489(18.7%)	1	
Yes	1909	622(32.6%)	1.68(1.29-2.19)**	0.000
<b>Time for more children</b>				
wants within 2 years	631	104(16.5%)	1	
wants after 2+ years	1989	515(25.9%)	1.62(1.03-2.54)*	0.039
Wants no more	1902	495(26%)	2.62(1.6-4.23)*	0.003
<b>Number of living children</b>				
No children	438	73(16.7%)	1	
1-3 children	2145	651(30.3%)	2.83(1.63-4.92)**	0.000
4 or more	1939	390(20.1%)	2.3(1.2-4.48)**	0.000

**\*\*Statistically significant at P<0.001 & \* statistically significant at P<0.05**

#### 4.1.3.2 Enabling resources

##### **Table5: Exposure to information**

Among women who were exposed to FP information, the highest proportion of FP users are seen from those who got the information from magazine 96(50.8%) followed by TV 275 (45.7%). During univariate analysis all media sources of information had significant association with FP use. However when other predictor variables like age, wealth index, education and place of residence were controlled, all predictor variables become insignificant. Those who heard FP information on radio, TV and read on magazine are 1.1(OR=1.1, 95%CI [0.83-1.49], P=0.494), 1.5(OR=1.49, CI [0.5-1.77], P=0.842) and 0.9(OR=0.94, 95%CI [0.5-1.77], P=0.842) times as likely to use FP respectively as compared to those who are not exposed to those media information. Women who are visited by FP worker in the last 12 months are 1.4(OR=1.41, 95%CI, [1.002-1.98], P=0.049) times as likely to use FP as compared to those who are not visited by FP worker and the association was significant.



In summary only visited by FP worker in the last 12 months showed significant association with FP use.

**Table5. Multivariate analysis: exposure to sources of information in women of age 15-49 years with family planning use in Oromia region, 2011.**

<b>Independent variables</b>	<b>Number</b>	<b>% FP user</b>	<b>Adjusted OR(95%CI)</b>	<b>P-value</b>
<b>Heard on radio</b>				
No	2918	570(19.5%)	1	
Yes	1605	544(33.9%)	1.11(0.83-1.49)	0.494
<b>Heard on TV</b>				
NO	3917	838(21.4%)	1	
Yes	602	275(45.7%)	1.49(0.96-2.3)	0.076
<b>Read on magazine ****</b>				
No	4334	1018(23.5%)	1	
Yes	189	96(50.8%)	0.94(0.5-1.77)	0.842
<b>Visited by family planning worker in the last 12 months</b>				
No	3786	869(23%)	1	
Yes	730	245(33.5%)	1.41(1.002-1.98)*	0.049

\* Statistically significant at P<0.05

## **4.2 Discussion of quantitative analysis**

### **4.2.1 Current use of FP**

In 2011 the CPR of women of reproductive age group 15-49 years in Oromia region is 24.6% which is lower than CPR of currently married women (26.2%) in 2011 EDHS (CSA 2012). The difference comes, in DHS CPR was calculated for those women who are currently married however in this analysis all women in the reproductive age group (except those who said they never had sex) were included. The explanation for low CPR could be unmarried women are not expected to use FP. Pre marital sex is seen as a taboo in the society as they value keeping virginity till the day of marriage. Health care workers negative attitude towards contraceptive provision to adolescents might also contribute to the low FP use in unmarried women. In addition the country's unmet need for young unmarried women is even higher than married women (33%) which will contribute to low CPR (USAID 2012).

Knowledge about at least one type of FP method is 96.8% which is consistent with the national level, 97% and other studies in Ethiopia (Mekonnen & Worku 2011; CSA 2012; Tilahun et al. 2013).

The most widely used method is injectable (70.5%) which is consistent with study in Ethiopia (Mekonnen & Worku 2011; Gizaw & Regassa 2011) while long acting FP methods are convenient to use and does not need frequent visit to the health facility. The reason why injectable is mostly used method, could be non-familiarity to other FP method or HCW are not promoting other type of methods due to unavailability or lack of skill. On the other hand the least used FP method in the study area is condom (0.5%) which is consistent with another study done in Ethiopia (Ko et al. 2010). The reason they are not using condoms, could be lack of promotion to use condom as contraceptive in addition to STI prevention. Besides the use of male condoms is out of control of women as males are dominant in every decision. So unless they are convinced by themselves to use it, there is a possibility of male opposition.

In the study area women mentioned that being not married, breast feeding, not having sex, fear of side effects, religious prohibition, knowing no method, husband/partner opposition lack of access, knows no source and inconvenient to use as reasons for not using FP method; consistent with other studies (Schuleer, Roltach & Mukiri 2009; Ko et al. 2010).

### **4.2.2 Demographic factors**

In this study age was found to be significantly associated with FP use. In general when the age of women increases above 35, the trend in the use of FP decreases and the result is similar with other study elsewhere (Takele, Degu & Yitayal 2012). Those who are in the age group of 45-49 years are the least FP user. This could be explained by, 68.4% of

women in this age group; they reported that they are in menopause **(Annex6)**.

Highest proportion of FP use was seen in the age group of 25-34 (27.7%) years. The possible explanation of increased use in this age group could be there is a possibility that a woman can have more than one child in these age groups. In Ethiopia the median age of first marriage is 16.5 years (CSA 2012). Similar to the national figure the median age of first marriage in the study area is 16.7 years so there is a possibility of having more than one child in this age group. Women in age group 25-34 in the study area, 53.9% of them already have 1-3 living children and 41.9% of them have 4 or more children **(Annex7)**.

Women's level of education showed association with FP use and educated women have higher use of FP and it is consistent with other studies in Ethiopia (Tilahun et al. 2013; Gordon et al. 2011; Beekle & McCabe 2006). As education needs more time, the chance of women demanding a child will be less. In addition when women's educational level increases their level of understanding about the use of contraceptives will increase. They will have high chance to be exposed to information about FP. Lack of knowledge let women not to have informed decision about family planning options. However, despite the positive association of FP use and educational level of women, in the study region only 31%, 3.4% and 3.2% of women have attended primary, secondary and higher education respectively. The regional government has put its effort to increase the number of schools and enrolment of capacity. Elementary schools were increased from 4655 in 2002/2003 to 8155 in 2006/2007. In addition senior secondary schools were increased from 156 to 313 in the same year. The gross enrolment rates for elementary and secondary school were increased from 57% and 9% in 2002/2003 to 76% and 16% in 2006/2007 respectively. However the literacy rate of female is 22.8% and male literacy rate is 49.4% which is more than twice than the female literacy rate (ONRS 2011).

Type of place of residence did not show significant association with FP use. Living either in urban or rural areas does not have a difference. This shows that there is other contributing factors that affect FP use other than place of residence like SES and education.

Marital status of women found to have positive association with FP use where married women are 4 times more likely to use FP as compared to their non married counterparts. The result is consistent with another study in Ethiopia (Megabiaw 2012). In most cases married women are free to go for FP than those who are not married. As premarital sex is not accepted in most societies due to religious prohibition or the society see it as a taboo. So if they go for FP they will be blamed for not abiding by the rules and regulations set by the society. In addition married couples may

agree to space or limit so there is high chance of FP use in married couples.

Religion is also associated with FP use in the study area. Orthodox Christians are more likely to use FP than those who are Muslims which is contrary to other studies (Kebede 2006; Ieda 2012). This could be explained by in the analysis it is found that higher proportion of orthodox has secondary (64.1%) and higher (58.6%) education. Their educational status may contribute to increased use of FP than the other religion. In addition more than half (57%) of them are living in urban areas as compared to protestants (21%) and Muslims (22%) (**Annex8**). This might also help them to have better information and health facility access so as to use FP. In the study region almost half of the population are Muslim though they are the least FP user. This signals how important it is the involvement of religious leaders in every FP issues.

#### **4.2.3 Socio-cultural factors**

This study showed that knowledge did not show significant association with FP use. Knowledge seems to be universal but there is low utilization of FP, this result is consistent with other study (Tilahun et al. 2013). This shows that having knowledge is not sufficient condition to use FP and the intervention should focus on other mechanism other than mainly awareness creation about FP.

The socio economic status of women; both wealth index and respondents working status are associated with FP use. Both predictor variables show women's level of income. The result is consistent with a study in Kenya (Okech, Wawire & Mburu 2011a). They will have access to information and health care. In addition having a better income empowers women, improves negotiation capacity and decision making power. So they will have a say in FP use either for spacing or limiting.

Though Husband /partner education did not put in the final multivariate logistic regression model to decide whether it is a predictor variable, different literature showed that it is significantly associated with FP use (Kebede 2006; Berhane et al. 2011). Husband's educational level will increase their acceptance of FP as it helps them to have knowledge about its use. Increased education level is likely to be related with improved economy of the family which in turn help the women in accessing the health facilities. In addition educated men are likely to have discussion with their wives about FP issues. Having discussion with husband improves FP use as it can facilitate joint decision. We cannot ignore the decision making power of men in the house hold. In the analysis among users of FP 79.4% of decision was made jointly by the respondent and husband/partner (**Annex9**). This shows that the likelihood of male approval in FP use and it consistent with other study in Ethiopia (Tuloro et al. 2006). This shows the great role of men in every decision in the household and their approval promotes the use of FP. The intervention strategy should give emphasise to the involvement of men.

The time when women want another child has association with FP use. Among women who wants either to have another child after two years or do not want any more child (who have desire to limit their child bearing) only 25.9% and 26% of them are using FP respectively. This shows there is high unmet need in the region.

Number of living children has association with FP use, consistent with a study elsewhere (Gizaw & Regassa 2011). Similar to the study finding in Ethiopia (Dibaba 2008; Bhargava 2006), the study result showed that when number of living children increases, the desire for more children decreases. However, though the desire for more children decreases with increasing number of living children, still 30.7% of women with 4 or more living children want to have another child (**Annex 4**). This could possibly be explained by the fact the male-female composition might not be reached, as having more number of male child is seen as a prestige in the region for different reasons (Ieda 2012). Moreover when the number of living children increases, FP use has decreased. This could be explained, by the time when women are having 4 or more children, she might be in menopause or low SES as more resources will be needed to feed, send to school, pay for health of the families. So this could be associated with low FP use.

#### **4.2.4 Exposure to family planning information**

Contrary to this study finding, in another study in Ethiopia showed that media exposure has association with FP use(Gizaw & Regassa 2011). This could be explained by the information conveyed through media might not be enough to bring behavioural change. In addition the respondents might not have enough leisure time to listen to the message. Moreover as the study result revealed majority of the respondents had access to radio and only 602(13%) and 189 (6.7%) had access to TV and magazine respectively. This could be again due to the high cost of TV, low access to printed media and low literacy level to read magazine. There is high proportion of FP use in those who are exposed to information from magazine 90 (50.8%). The fact that there is high proportion of FP user in this group is related to educational level of women.

Family planning worker visit showed association with FP use. Their home to home visit might bring behavioural change and as well as it will increase accessibility of FP.

## **Chapter 5: The current policy, strategies and interventions on family planning**

### **5.1 National population policy**

In 1993 national population policy was formulated. The reason why the formulation of the policy was, rapid population growth of the country did not match with the capacity of the country. Low access to education, health and low life expectancy are some of the consequences rapid population growth. Some of the objectives of the policy were reducing TFR to 4.0 and increase contraceptive prevalence rate to 44% by the year 2015, increasing female participation at all level of education and giving information and education on the relevance of having small family size etc. Some of the strategies designed are expansion of clinical and community based contraceptive distribution service, rising the first age of marriage to 18 years, development of IEC to promote male involvement in FP, diversifying methods of contraception etc (GOE 1993b).

The government of Ethiopia issued the NPP 20 years ago, all the issues which we are talking about now; increasing the CPR, decreasing fertility rate, increasing women participation in all sectors etc were included in the document. Although changes were seen in those areas, it is still far behind the target set to achieve by 2015. In one review which analyzes whether the country achieved the set objective in the policy, the result demonstrated the following. Challenges were identified that hinder the implementation of the policy. Failure to establish the national population council was one of the major challenges. According to the policy document it responsible for the development of policies and programs to be undertaken in other sectors and to provide guideline for implementation of NPP. As a result there were poor coordination, weak monitoring and evaluation, lack of comprehensive population programs and budget constraints which affects the implementation of the policy (Hailemariam, Alayu & Teller 2011).

At every attempt to increase the percentage of CPR, the government spending should also increase. This is because as we are increasing the CPR we are also increasing the number of contraceptive acceptors, which needs large number of providers and commodities (USAID 2010a). In 2007 the Government of Ethiopia allocated money for contraceptive procurement for the first time and it spent \$919000 between 2007 and 2008. In 2010-2011 the government spending increased to \$919000. Before 2007 almost all contraceptives were donated by external donors (USAID 2012). Though this is a good start strong government commitment is required to work on the implementation of the policy and increasing the budget allocated for so as to increase FP utilization.

When we see the situation in Oromia in light of the NPP the policy prescriptions of increasing CPR, decreasing fertility rate and increasing women participation in education are in place. The achievements and

implementation barriers were similar with the national experience. When we look at some of the factors that influence utilization of FP, in the analysis for example, only 31.1% of women in Oromia have attended primary education and only 16% of them were visited by family planning worker in the last 12 months. Concerning the first age of marriage, though it is written in the policy the minimum age to be 18 years, it is still below the recommended age; 16.7%. These are impediment not to have a sustainable program in place to achieve what has been set in the national population policy.

## **5.2 The Ethiopian national reproductive health strategy (2006-2015)**

The Ethiopian national reproductive health (RH) strategy has six priority areas to be addressed from 2006-2015. Family planning was one of the six priority issues. Issues were identified at the community, system and policy level. At the community level early marriage, desire for large family size, economic dependency of women and interest of families to use children as a labor force were identified to have constrained FP use. Then demand supply gap; as the service is delivered by public health facilities and stock out of FP commodities and lack of integration of RH services were identified at system level. And finally lack of funding for FP commodity procurement and lack of coordination between government and NGO were identified at system level. The strategies are create acceptance and demand on FP, increase access to and utilization and promote FP service delivery by the lowest cadres are strategies to reduce unwanted pregnancy and help the family to have the desired number of children (MOH 2006).

Similar to the national situation the economic dependency of women has contributed to low FP use in the region. There are only 42% women who employed by employer and a total of 41% of women are in the richer and richest wealth index. In addition in the region the main FP provider is the public sector (74%). To increase access to FP service, about 13,000 HEW are trained and deployed in the Oromia region (AHWO 2010).

## **5.3 Health sector development plans (HSDP)**

In Ethiopia a 20 year health sector development strategy has been formulated so as to achieve the health policy. It is planned to be implemented in five-year series of plan (Center for national health development in Ethiopia).

During HSDP 1&2 several achievements were seen; health post, health center, and hospitals were built, increase the number of HCW of all category, to help in achieving universal PHC coverage health extension package was created, marked achievement was seen in prevention and control of HIV/AIDS, malaria and TB. The country showed notable improvement in contraceptive from 4% in 1996 to 25% in 2004. On HSDP III (2005/06-2010/11), besides the other targets of family health,

the target of for family planning coverage was to increase it from 25% to 60%. To achieve this, the MOH put tremendous effort. Expansion of health facilities; the number of HP, HC and public hospitals are increased to 14416, 2689 and 111 respectively. About 33,819 HEP trained and deployed. By the end of the period the coverage was increased to 56.2%. However there are still gaps in trained health personnel (medical doctors, midwives and anesthesia). Now the country is in the implementation phase of 4<sup>th</sup> HSDP (2010/11-2014/15). Community ownership and improving access to health services, quality of services and pharmaceutical supplies are some of the strategic objectives in HSDPIV (MOH 2010).

Though Oromia region is the largest region in the country, it suffers from the lack of health care providers; GPs, HO and nurses. Health care ration per 1000 population is 0.73 which is lower than the recommended standard by WHO (AHWO 2010).

## **5.4 Interventions**

### **5.4.1 Use of health extension and task shifting**

Ethiopian government made an effort to increase the number of health facilities (as mentioned above) as curative health services were a concern previously. However there was limited service utilization due to physical inaccessibility and lack of trained and high level health professional. In response to this in 2003 the government has introduced health extension program (HEP) to make the service reachable at the community level. It focuses health promotion and prevention and as well as on selected curative services of maternal and child health. It has Family planning as one of the components of intervention areas under the family health. Two HEW are assigned at one health post (HP) which is located at the kebele and serve 5000 population and they are to provide FP, antenatal care (ANC) etc (MOH 2007). In general as the result of the HEP program the number of people living in 10 km radius to a HP has increased (MoFED 2010).

They provide FP education and provision of short acting FP like pills, condom and injection. Concerning long acting methods (implant), there was low access to it though it is safe, effective and low cost (Pathfinder International 2010). In 2009, the government of Ethiopia has made a decision on task shifting of implanon insertion by trained HEW so as to reach those who have limited access to it (EARHN 2013). Initially a total of 218 HEW were trained on implanon insertion, of them 59 HEW were from Oromia region. After two months of the initial training 1215 women were served in the region (Pathfinder International 2010). This shows that the effectiveness of the program.

As it is evidenced by the study on the role of HEW in improving maternal health service utilization in rural parts of Ethiopia, the result showed that HEW have contributed a lot in the FP service utilization. A study compared



its outcome to previously done 2005DHS to see the impact of HEW on FP use. The CPR of the study area increased to 41.8% which is higher than the regional 2005DHS average result which is 16.5%. About 72% of the respondent said that they were visited by HEW in the last 12 months (Medhanyie et al. 2012).

Despite the evidence that the role of HEW in improving access to implant and government effort to increase access to it, knowledge and use of implants remain low. As it is shown in the analysis knowledge of women about implants is 65% and the current use is 12.9% (**Table2**). So there is a need to strengthen the HEP.

#### **5.4.2 Social marketing**

As it is written in the policy, in Ethiopia women have the right to get the FP service for free or with affordable prices. In all public health facilities the service is given for free. However for those who can pay, there is a possibility to buy with affordable price. Social marketing is one way through which the FP services can be provided with affordable price and the government is promoting the idea of social marketing. It is already been started the promotion and sale of Condom and pills through DKT Ethiopia (is a social marketing non-profit provider that has been promoting FP). It distributes condoms and contraceptives to pharmacies and small shops to rural areas (hard to reach areas). Nationally in five years time from 2005-2010, it provided 40% of oral contraceptives and 75% of condom (Center for health market innovations 2013).

In Oromia region despite the effort of DKT in social marketing activity for condom and other contraceptives, in the analysis condom was found to be the least used type of FP (**Table2**). So Promotion and sale of condom in the region should be given due attention in order to increase FP access.

#### **5.4.3 Increase school enrolment**

From the analysis education is an important predictor of FP use; however in the study region still 62.2% of women are not enrolled in formal education. As it is mentioned in NPP increment of women's enrollment in formal education is one of the strategies to attain the NPP goal. The government has put effort to increase the number of schools and enrollment in the country in general. As a result Ethiopia becomes one of the countries that are on track to achieve millennium development goal 2 (MDG2); achieve universal primary education by 2015. In the country the number of schools has increased from 16000 in 2004/2005 to more than 25000 in 2008/09. In 2009/10 the female male ratio in primary education was 0.93 while the gap becomes wide when the level of education increases. In addition the gross and net primary school enrollment of females becomes 93% and 86.5% respectively (MoFED 2010).

## **Chapter 6: Conclusion and recommendations**

### **6.1 Conclusion**

Based on the findings from both literature review and data analysis, the investigator is able to conclude the following. Despite the fact that knowledge about FP is universal, the utilization of FP is still low (24.6%). This is a signal that the government intervention plan should focus on other areas than mainly awareness creation. Those who are using FP are mostly dependent on short acting methods while long acting methods are convenient and effective. The government effort is needed for promotion long acting methods.

Different factors were identified for low utilization of FP in the study region. Age of women, religion, marital status, women education and income were found to be predictors of FP use.

It is also clear that from the discussion cultural norms, fertility desire and number of living children, husband education and discussion were also predictors of FP use. As males do have key role in decision making every intervention about FP should also involve them.

In addition inaccessibility (financial and geographical) and unavailability (skilled man power and range of FP methods) were found to be important predictors for low utilization of FP. GOE is trying to increase access through the deployed HEW. As evidence showed, HEWs have brought changes so the program should be strengthened.

The first age of marriage is 16.5 which is below the recommended age in the revised family code which says a women should get married after she attained the full age of 18 years (FDRE 2000). This will lead to have many children at an early age and school dropout. As it is seen in the study area only 3.4% of women have attended secondary school and half of the population do not have formal school. In response to this Government of Ethiopia (GOE) is trying to increase women's school enrolment. However the female male ratio is not yet balanced nationally; 0.93 in the primary school and the gap will be wider when the level increases.

In general the country has policies, RH strategic plan and HSDP; in all documents the issue of family planning were mentioned including its strategies how to go about it. However the target set for CPR by both NPP (44%) and HSDP (65%) by the end of 2015 seems unreachable. So, strong government commitment is required from all sectors (like health, education finance etc) for the implementation of the national population policy.

## 6.2 Recommendation

- As knowledge about FP is almost universal in women of age group 15-49 years, the intervention plan should focus other intervention plan.
- Religion was found to be predictor in FP use. As religious leaders have an influence on a population, they should be involved in FP promotional activities.
- Education and being an employee to earn money help women to be empowered. The government should continue to work to increase female school enrolment as educated women have more decision making capacity than those who are non-educated. Women should be given priority to get a job as earning money helps them to be financially independent and to control resources.
- Male involvement in each intervention should be given priority as men are influential in women's decision in FP use. The education and counselling session should be designed to promote husband and wife discussion about FP issues.
- The country in general and the study region has suffered from shortage trained man power. Increasing training institutions so as to produce more health care worker should be in a government long term plan. For short term plan GOE should consider training of more low level professional. The government should strengthen the current HEP, HEW should continue providing information FP and counselling on FP use. All women who need it should have access to all types of FP. In addition the government should increase the number of high level health care workers as well.
- Giving consideration of informed choices, the government should work to create awareness on long acting permanent family planning methods as women's have limited knowledge about it. Long acting FP methods are suitable, effective and are low cost. as the women should not visit the health faculty within short period
- Discouraging early marriage; the recommended first age of marriage; 18 years should be reinforced and the issue should be addressed through religious and community leaders.
- Additional qualitative research should be conducted on need factors.

## References

- African economic outlook 2012. Available from: <<http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Ethiopia%20Full%20PDF%20Country%20Note.pdf>>. [Viewed 12August, 2013].
- AHWO 2010, *Human Resources for Health Country Profile, Ethiopia*
- Alemayehu, M, Belachew, T & Tilahun, T 2012, 'Factors associated with utilization of long acting and permanent contraceptive methods among married women of reproductive age in Mekelle town, Tigray region, north Ethiopia', *BMC.*, vol. 12, no. 6.
- Anderson, R 1995, 'Revisiting the behavioral model and access to medical care: Does it matter?', *Journal of Health and Social Behavior* vol. 36, no. 1, pp. 1-10.
- Beekle, AT & McCabe, C 2006, 'Awareness and determinants of family planning practice in Jimma, Ethiopia', *Int Nurs Rev*, vol. 53, no. 4, pp. 269-76.
- Berhane, A, Biadgilign, S, Amberbir, A, Morankar, S, Berhane, A & Deribe, K 2011, 'Men's Knowledge and Spousal Communication about Modern Family Planning Methods in Ethiopia ', *Afr J Reprod Health*, vol. 15, no. 4, pp. 24-32.
- Bhargava, A 2006, 'Desired family size, family planning and fertility in Ethiopia', *Biosocial Science* vol. 39, no. 03, pp. 367-381.
- Center for health market innovations 2013, *DKT Ethiopia*. Available from: <<http://healthmarketinnovations.org/program/dkt-ethiopia>>. [14 July, 2013].
- Center for national health development in Ethiopia, *Health policy, plans and strategies*. Available from: <[http://cnhde.ei.columbia.edu/healthsystem/health\\_policy.html](http://cnhde.ei.columbia.edu/healthsystem/health_policy.html)>. [Viewed 16 February, 2013].
- CSA 2013, CSA. Available from: <<http://www.csa.gov.et/index.php/2013-02-20-13-43-35/national-statistics-abstract/141-population>>. [08 may, 2013].
- CSA 2006, *Ethiopia Demographic and Health survey 2005*, Addis Ababa, Ethiopia and Calverton, Maryland, USA.
- CSA 2008, *Summary of the statistical report of 2007 population and housing census, population size by age and sex*, Addis Ababa, Ethiopia[09/03/2013].
- CSA 2012, *Ethiopian Demographic health survey 2011*, Central Statistical Agency, Addis Ababa , Ethiopia ,ICF International Calverton, Maryland, USA.
- Desai, J & Tarozzi, A 2011, 'Microcredit, family planning programs, and contraceptive behavior: evidence from a field experiment in Ethiopia', *Demography*, vol. 48, no. 2, pp. 749-82.
- Dibaba, Y 2008, 'Factors Influencing Women's Intention to Limit Child Bearing in Oromia, Ethiopia', *Ethiop.J.Health Dev.*, vol. 22, no. 3, pp. 28-33.

- Dynes, M, Stephenson, R, Rubardt, M & Bartel, D 2012, 'The influence of perceptions of community norms on current contraceptive use among men and women in Ethiopia and Kenya', *Health Place*, vol. 18, no. 4, pp. 766-73.
- EARHN 2013, *Repositioning Reproductive Health & Family Planning in Eastern Africa*, Eastern Africa reproductive health network. Available from: <<http://www.ppdafrika.org/docs/EARHN%20Newsletter%202013.pdf>>. [22July, 2013].
- Ethiopia Economy 2012, march 06, 2012. Available from: <[http://www.theodora.com/wfbcurrent/ethiopia/ethiopia\\_economy.html](http://www.theodora.com/wfbcurrent/ethiopia/ethiopia_economy.html)>. [February 16].
- FDRE 2000, 'The Revised Family Code Proclamation No. 213/2000', *Federal Negarit Gazette*.
- FGAE 2012, *Family guidance association of Ethiopia today*. Available from: <<http://www.fgaeet.org/?q=about>>. [Viewed 31July, 2013].
- FHI 2013, *Program research for strengthening services*. Available from: <<http://www.fhi360.org/projects/progress-ethiopia-evaluation-implanon-insertion-training-health-extension-workers>>. [Viewed 07 July, 2013].
- Gizaw, A & Regassa, N 2011, 'Family planning service utilization in Mojo town, Ethiopia: A population based study', *Geography and Regional Planning* vol. 4, no. 6, pp. 355-363.
- GOE 1993a *Health policy of the transitional Government of Ethiopia*, Addis Ababa, Ethiopia, [ ].
- GOE 1993b, *National Population Policy of Ethiopia*, Office of the Prime Minister, Addis Ababa, Ethiopia.
- Gordon, C, Sabates, R, Bond, R & Wubshet, T 2011, 'Women's Education and Modern Contraceptive Use in Ethiopia ', *International Journal of Education* vol. 3, no. 1.
- Hailemariam, A, Alayu, S & Teller, C 2011, 'The National Population Policy (NPP) of Ethiopia: Achievements, Challenges and Lessons Learned, 1993-2010'.
- Ieda, A 2012, Perceptions and behaviour related to family planning in a rural area in the Oromia region, Ethiopia, thesis, Oslo.
- Kebede, Y 2006, 'Contraceptive prevalence in Dembia District, northwest Ethiopia', *Ethiopian Journal of Health Development*, vol. 20, no. 1, pp. 32-38.
- Ko, IS, You, MA, Kim, ES, Lee, TW, Kim, S, Kim, YM, Nam, JJ & Lee, HK 2010, 'Family planning practice and related factors of married women in Ethiopia.', *International Nursing Review*, vol. 57, pp. 377-382.
- Maps of world 2013. Available from: <<http://www.mapsofworld.com/ethiopia/>>. [Viewed 14August, 2013].

- Marie Stopes International, *Where in the world*. Available from: <<http://www.mariestopes.org/where-in-the-world#ethiopia>>. [18July, 2013].
- Medhanyie, A, Spigt, M, Kifle, Y, Schaay, N, Sanders, D, Blanco, R, Geertjan, D & Berhane, Y 2012, 'The role of health extension workers in improving utilization of maternal health services in rural areas in Ethiopia: a cross sectional study', *BMC Health services*, vol. 12, no. 352.
- Megabiaw, B 2012, 'Awareness and utilization of modern contraceptives among street women in North-West Ethiopia', *BMC Womens Health*, vol. 12, no. 31.
- Mekonnen, W & Worku, A 2011, 'Determinants of low family planning use and high unmet need in Butajira District, South Central Ethiopia', *Reproductive Health*, vol. 8, p. 37.
- MoFED 2010, *Ethiopia: MDGs report, Trends and prospects for meeting MDG by 2015*, Addis Ababa, Ethiopia.
- MOH 2006, *National reproductive health strategy, 2006 - 2015*.
- MOH 2007, *Health extension program in Ethiopia, Profile*, Addis Ababa, Ethiopia.
- MOH 2010, *Health Sector Development Programme IV 2010/11 - 2014/15*, Addis Ababa[09/03/2013].
- MOH 2010/2011, *Health and health related indicator*, addis Ababa, Ethiopia.
- MOH 2011, *National guide line for family planning service in Ethiopia*, Addis Ababa.
- Molla, M, Berhane, Y & Lindtjorn, B 2008, 'Traditional values of virginity and sexual behaviour in rural Ethiopian youth: results from a cross-sectional study', *BMC Public Health*, vol. 8, p. 9.
- Nalwadda, G, Mirembe, F, Byamugisha, J & Faxelid, E 2010, 'Persistent high fertility in Uganda: young people recount obstacles and enabling factors to use of contraceptives', *BMC Public Health*, vol. 10, p. 530.
- OECD 2012, *Women's economic Empowerment, The OECD DAC Network on Gender Equality (GENDERNET)*. Available from: <<http://www.oecd.org/dac/povertyreduction/50157530.pdf>>.
- Okech, T, Wawire, N & Mburu, T 2011a, 'Contraceptive Use among Women of Reproductive Age in Kenya's City Slums', *International Journal of Business and Social Science*, vol. 2, no. 1, pp. 22-43.
- Okech, T, Wawire, N & Mburu, T 2011b, *Empirical Analysis of Determinants of Demand for Family Planning Services in Kenya's City Slums*, vol. 3, Global Journal of Health Science
- ONRS 2011, *Oromia National Regional State: Program of Plan on Adaptation to Climate Change*
- Pathfinder International 2011, *Integrating Family Planning and HIV in Ethiopia: An Analysis of Pathfinder's: Approach and Scale-Up* Available from: <<http://www.pathfinder.org/publications-tools/pdfs/Integrating-Family-Planning-and-HIV-in-Ethiopia-An->

- [Analysis-of-Pathfinders-Approach-and-Scale-Up.pdf?x=123&y=18](#)>. [19 July, 2013].
- pathfinder International 2012, *Integrated family health program*. Available from: <<http://www.pathfinder.org/our-work/projects/integrated-family-health-program-ethiopia.html>>. [Viewed 18 July, 2013].
- Pathfinder International 2010, *Scaling Up Community-Based Service, Delivery of Implanon*, Addis Ababa, Ethiopia.
- Peters, DH, Garg, A, Bloom, G, Walker, DG, Brieger, WR & Rahman, MH 2008, 'Poverty and access to health care in developing countries', *Ann N Y Acad Sci*, vol. 1136, pp. 161-71.
- Schuleer, S, Roltach, E & Mukiri, P 2009, *Gender norms and family planning decision-making in Tanzania*, Washington DC.
- Stephenson, R, Baschieri, A, Clements, S, Hennink, M & Madise, N 2007, 'Contextual Influences on Modern Contraceptive Use in Sub-Saharan Africa', *Am J Public Health* vol. 97, no. 7, pp. 1233-1240.
- Takele, A, Degu, G & Yitayal, M 2012, *Demand for long acting and permanent methods of contraceptives and factors for non-use among married women of Goba Town, Bale Zone, South East Ethiopia* in *BMC*, vol. 9.
- Tegegn, A, Yazachew, M & Gelaw, Y 2008, 'Reproductive Health Knowledge and Attitude among Adolescents: A community based study in Jimma Town, Southwest Ethiopia', *Ethiop.J.Health Dev.*, vol. 22, no. 3.
- Tengia-Kessy, A & Rwabudongo, N 2006, 'Utilization of modern family planning methods among women of reproductive age in a rural setting: The case of Shinyanga rural district, Tanzania', *East African Journal of Public Health*, vol. 3 no. 2, pp. 26-30. [17 June, 2013].
- Tilahun, M, Mengistie, B, Egata, G & Reda, A 2012, 'Health workers' attitudes toward sexual and reproductive health services for unmarried adolescents in Ethiopia', *BioMed Central Ltd.*, vol. 9, no. 19.
- Tilahun, T, Coene, G, Luchters, S, Kassahun, W, Leye, E, Temmerman, M & Degomme, O 2013, 'Family planning knowledge, attitude and practice among married couples in Jimma Zone, Ethiopia', *PLoS One*, vol. 8, no. 4, p. e61335.
- Tuloro, T, Deressa, W, Ali, A & Davey, G 2006, 'The role of men in contraceptive use and fertility preference in Hossana Town, southern Ethiopia', *Ethiop.J.Health Dev.*, vol. 20, no. 3, pp. 152-159.
- UNDP 2012, *Food Production and Consumption Trends in Sub-Saharan Africa: Prospects for the Transformation of the Agricultural Sector*.
- UNFPA, *Family planning and poverty reduction benefits for families and nations*. Available from: <<http://nigeria.unfpa.org/pdf/pdf2/Fact%20Sheet.pdf>>. [Viewed 12 June, 2013].

- USAID 2012, *Family planning in Ethiopia*. Available from: <<http://www.ppdafrica.org/docs/policy/FP%20in%20Ethiopia.pdf>>. [Viewed 13/02/2013].
- USAID 2010a, *The cost of family planning in Ethiopia* in Health policy initiative, , Washington, DC 20005 USA.
- USAID 2010b, *Health Improvement and Women-Owned Transformation(HIWOT), A CARE Family Planning Project in Ethiopia(Phase III)*.
- WHO 2011, *The Abuja Declaration ten years on*. Available from: <[http://www.who.int/healthsystems/publications/abuja\\_report\\_aug\\_2011.pdf](http://www.who.int/healthsystems/publications/abuja_report_aug_2011.pdf)>. [Viewed 18February, 2013].
- WHO 2012, , *Indicators for monitoring themillenium development goals:definitions, rationale, concepts and soources*. Available from: <<http://mdgs.un.org/unsd/mi/wiki/5-3-Contraceptive-prevalence-rate.ashx>>. [Viewed 12 June, 2013].
- WHO 2012a, *WHO fact sheet, family planning*. Available from: <<http://www.who.int/mediacentre/factsheets/fs351/en/>>. [Viewed 14February, 2013].
- WHO 2013. Available from: <[http://www.who.int/reproductivehealth/topics/family\\_planning/unmet\\_need\\_fp/en/index.html](http://www.who.int/reproductivehealth/topics/family_planning/unmet_need_fp/en/index.html)>. [Viewed 07 August, 2013].
- WHO 2013, , *Global health expenditure data base*. Available from: <<http://apps.who.int/nha/database>>. [Viewed 07August, 2013].
- WHO 2013, *Global Health Observatory (GHO)* Available from: <[http://www.who.int/gho/maternal\\_health/reproductive\\_health/family\\_planning/en/](http://www.who.int/gho/maternal_health/reproductive_health/family_planning/en/)>. [Viewed 12 June, 2013].
- WHO, *Sexual and reproductive health: Repositioning family planning*. Available from: <<http://www.afro.who.int/en/clusters-a-programmes/frh/sexual-and-reproductive-health/programme-components/repositioning-family-planning.html>>. [Viewed 14February, 2013].
- World Bank 2013. Available from: <<http://data.worldbank.org/indicator/SE.PRM.NENR>>. [Viewed 07August, 2013].



## Annexes

### Annex1. Map of Ethiopia (Maps of world 2013)



## Annex2. Organization of services, by level of care (MOH 2011)

Level of facility	Type of health personnel available	FP services
Health post	Health Extension Workers	<ul style="list-style-type: none"> <li>• Counsel on FP and other RH issues</li> <li>• Counsel on natural FP methods</li> <li>• Provide injectables</li> <li>• Insert Implanon</li> <li>• Refer to health center for other long-acting and permanent methods</li> <li>• Do planning based on local data</li> </ul>
Health centre	Health Officers (HOs), Midwives, Clinical	<p>The above activities, plus:</p> <ul style="list-style-type: none"> <li>• Conduct general physical and pelvic examinations, including VIA/VILI</li> <li>• Insert and remove implants</li> <li>• Insert and remove IUCD</li> </ul> <p>(Where a trained GMP/HO is available)</p> <ul style="list-style-type: none"> <li>• provide tubal ligation and vasectomy</li> <li>• Manage complications and side effects</li> <li>• Provide syndromic management of STIs</li> <li>• Provide HCT, including care</li> <li>• Train community-level workers and junior health professionals in FP</li> <li>• Conduct monitoring and facilitative supervision</li> </ul>
Primary Hospital	GMPs, Health officers, Midwives, Clinical Nurses, Public Health Nurses and Laboratory Technicians	<p>The above activities, plus:</p> <ul style="list-style-type: none"> <li>• Provide permanent methods of contraception</li> <li>• Receive referrals</li> <li>• Manage complications and side effects</li> <li>• Do work-ups for infertility</li> </ul>
General and Referral hospital	Obstetrician-Gynecologists, GMPs, HOs, Midwives, Clinical Nurses, Public Health Nurses, Laboratory Technicians	<p>The above activities, plus:</p> <ul style="list-style-type: none"> <li>• Manage infertility</li> <li>• Manage complicated STIs</li> <li>• Manage complications and side effects of contraceptive methods</li> <li>• Manage ROCs</li> <li>• Perform research</li> </ul>

**Annex3. The frequency distribution of all women of age 15-49 years by their background characteristics in Oromia region, 2011 (N=4522)**

<b>Independent variables</b>		<b>Frequency</b>	<b>percent</b>
<b>Age in 10-year groups</b>	15-24	1149	25.4
	25-34	1900	42.0
	35-44	1061	23.5
	45-49	412	9.1
<b>Highest educational level</b>	No education	2813	62.2
	Primary	1408	31.1
	Secondary	156	3.4
	Higher	145	3.2
<b>Current marital status</b>	Not married	566	12.5
	Married	3957	87.5
<b>Religion</b>	Orthodox	1250	27.6
	Protestant	1024	22.6
	Muslim	2249	49.7
<b>Type of place of residence</b>	Urban	644	14.2
	Rural	3878	85.8
<b>Wealth index</b>	Poorest	727	16.1
	Poorer	944	20.9
	Middle	989	21.9
	Richer	1032	22.8
	Richest	831	18.4
<b>Number of living children</b>	No children	438	9.7
	1-3 children	2145	47.4
	4 or more children	1940	42.9

**Annex4. Association between number of living children and preference to have another child**

	<b>do not want another child</b>	<b>wants to have another child</b>	<b>Total</b>
No children	29(6.6%)	410(93.4%)	439 100.0%
1-3 children	682(31.8%)	1462(68.2%)	2144 100.0%
4 or more children	1345(69.3%)	595(30.7%)	1940 100.0%
Total	2056	2468	4522 100)

### Annex5.Univariate analysis result

Independent variables	Number	% FP user	Unadjusted OR(95%CI)	P-value
<b>Age in 10-years groups</b>				
15-24	1149	316(27.5%)	3.73(2.1-6.75)	0.000
25-34	1901	526(27.7%)	3.71(2.1-5.59)	0.000
35-44	1061	237(22.3%)	2.88(1.58-5.24)	0.000
45-49	412	35(8.5%)	1	
<b>Women's level of education</b>				
No education	2814	490(17.4%)	1	0.000
Primary	1408	456(32.4%)	2.25(1.75-2.89)	0.000
Secondary	155	75(48.4%)	4.6(2.67-7.93)	0.000
Higher	146	93(63.7%)	8.52(4.75-15.3)	
<b>place of residence</b>				
Rural	3879	821(21.2%)	1	
Urban	644	293(45.5%)	3.1(2.34-4.1)	0.000
<b>Current marital status</b>				
Not married	566	78(13.8%)	1	
Married	3957	1036(26.2%)	2.47(1.6-3.79)	0.000
<b>Religion</b>				
Orthodox	1249	477(38.2%)	3.7(2.9-4.87)	0.000
Protestant	1024	293(28.6%)	2.5(1.88-3.41)	0.000
Muslim	2249	343(15.3%)	1	
<b>Wealth index</b>				
Poorest	727	73(10%)	1	
Poorer	944	167(17.7%)	1.99(1.23-3.24)	0.005
Middle	989	188(19%)	2.1(1.32-3.46)	0.002
Richer	1032	310(30%)	3.62(2.29-5.73)	0.000
Richest	832	377(45.3 %)	7.52(4.77-11.86)	0.000

<b>Independent variables</b>	<b>Number</b>	<b>% FP user</b>	<b>Unadjusted OR(95%CI)</b>	<b>P-value</b>
<b>Respondent currently working</b>				
No	2610	489(18.7%)	1	
Yes	1909	622(32.6%)	1.98(1.58-2.5)	0.000
<b>Knowledge of any method</b>				
No	145	0	1	
Yes	4378	1114(25.4%)	551962849	0.997
<b>Husband/partner's education level</b>				
No education	1990	316(15.9%)	1	
Primary	1961	529(27%)	2.0(1.55-2.63)	0.000
Secondary	261	113(43.3%)	4.31(2.74-6.77)	0.000
Higher	196	125(63.8)	9.63(5.71-16.2)	0.000
Don't have husband	114	30(26.3%)	1.75(0.84-0.37)	0.138
<b>Desire for more children</b>				
Both wants same	1603	581(36.2%)	1	
Husband wants more	1088	248(22.8%)	0.51 (0.38-0.68)	0.000
Husband wants fewer	328	117(35.7%)	1.01(0.66-1.52)	0.982
Don't have husband	1504	168(11.2%)	0.22(0.16-0.3)	0.000
<b>Time for more children</b>				
wants within 2 years	631	104(16.5%)	1	
wants after 2+ years	1989	515(25.9%)	1.71(1.16-2.54)	0.007
Wants no more	1902	495(26%)	1.77(1.19-2.62)	0.004
<b>Number of living children</b>				
No children	438	73(16.7)	1	
1-3 children	2145	651(30.3)	2.1(1.34-3.29)	0.001
4 or more	1939	390(20.1)	1.23(0.77-1.95)	0.385

<b>Independent variables</b>	<b>Number</b>	<b>% FP user</b>	<b>Unadjusted OR(95%CI)</b>	<b>P-value</b>
<b>Heard on radio</b>				
No	2918	570(19.5%)		
Yes	1605	544(33.9%)	2..13(1.7-2.71)	0.000
<b>Heard on TV</b>				
NO	3917	838(21.4%)	1	
Yes	602	275(45.7%)	3.18(2.37-4.27)	0.000
<b>Heard on magazine</b>				
No	4334	1018(23.5%)	1	
Yes	189	96(50.8%)	3.36(2.08-5.43)	0.000
<b>Visited by family planning worker in the last 12 months</b>				
No	3786	869(23%)	1	
Yes	730	245(33.5%)	1.59(1.19-2.12)	0.002

#### **Annex6. Association between women's age and exposure status**

<b>Age in 10 years group</b>	<b>Fecund</b>	<b>Pregnant</b>	<b>Postpartum amenorrheic</b>	<b>In fecund, menopausal</b>	<b>Total</b>
15-24	491(42.7%)	173(15%)	400(34.8%)	86(7.5%)	1150
25-34	735(38.7%)	258(13.6%)	682(35.9%)	225(11.8%)	1900
35-44	475(44.8%)	70(6.6%)	247(23.3%)	269(25.4%)	1061
45-49	113(27.4%)	0	17(4.1%)	282(68.4%)	412
Total	1814	501	1346	862(19.1%)	4522

**Annex7. Association between number of living children and age of women in 10 years group in Oromia region**

Age in 10 years group	Living children			Total
	No children	1-3 children	4 or more children	
15-24	326(28.3%)	793(69%)	31(2.7%)	1150
25-34	79(4.2%)	1025(53.9%)	796(41.9%)	1900
35-44	25(2.4%)	235(22.2%)	800(75.5%)	1060
45-49	9(2.2%)	91(22.1%)	312(75.7%)	412
Total	439	2144	1939	4522

**Annex8. Association between highest level of education and type of place of residence with religion of women of age 25-49 years in Oromia region**

	Orthodox	protestant	Muslim	Total
<b>Education</b>				
No education	614 21.8%	602 21.4%	1598 56.8%	2814 100.0%
Primary	451 32%	368 26.1%	589 41.5%	1408 100.0%
Secondary	100 64.1%	22 14.1%	34 21.8%	156 100.0%
Higher	85 58.6%	32 22.1%	28 19.3%	145 100.0%
Total	1250	1024	2249	4523
<b>Type of Place of residence</b>				
Urban	367 (57%)	135 (21%)	142 (22%)	644 100%
Rural	883 (22.8%)	889 (22.9%)	2107 (54.3%)	3879 100%
Total	1250	1024	2249	4523

**Annex9. Decision maker for Family planning use**

Who makes decision	Frequency	Percent
Respondent only	172	16.9%
Husband/partner	38	3.8%
Joint decision	810	79.4%
Total	1021	100%