

ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
INSTITUTES OF POPULATION STUDIES



DETERMINANTS OF UNINTENDED PREGNANCY
AMONG CURRENTLY MARRIED WOMEN IN GOZAMIN
WOREDA, EAST GOJJAM OF AMHARA, ETHIOPIA

BY

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JUNE 2010

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*Determinants of unintended pregnancy among currently
married women in Gozamin woreda, East Gojjam of Amhara,
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*A thesis submitted to the school of graduate studies Addis
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June 2010

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Women in Gozamin Wereda, East Gojjam of Amhara, Ethiopia***

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This Manuscript is in Memorials of:

My brother;

Ato Eyob Teshome

Died on;

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Acronyms /Abbreviations

AGI	Alan Guttmacher Institute
CSA	Central statistical Agency
EDHS	Ethiopia Demographic and Health Survey
FGD	Focus Group Discussion
FMOH	Federal Ministry of Health
ICPD	International Conference on Population and Development
MHC	Maternal Health Care
MOPE	Ministry of Population and Environment
MOH	Ministry Of Health
MDGs	Millennium Developmental Goals
PSDAP	Plan for Accelerated and Sustained Development to End Poverty
PRB	Population Reference Bureau
STI/STD	Sexually transmitted infection/ Sexually transmitted disease
TFR	Total Fertility Rate
USAID	United States Agency for International Development
I CEF	United Nations International Fund for Children
WHO	World Health Organization

Abstract

Context: - It is a universally accepted fact that unintended pregnancy and births could have negative consequences for women, children, families and societies at large. The current study aimed to examine the level and determinants of unintended pregnancy among selected women in Gozamen woreda in the Amhara Region.

Methods: - A cross-sectional study involving a sample of 576 currently married women of reproductive age, whose most recent pregnancy occurred within the last five years prior to the survey was carried out in three kebeles, selected from the study area. All pregnancies regardless of outcome are included in the study. Data was collected from 554 respondents using a structured questionnaire. A multistage sampling technique was used to reach the respondents. Both quantitative and qualitative methods were employed. Descriptive and multivariate statistical techniques were used in the analysis of the data.

Results: - About two out of five women (40.8 percent) reported that their most recent pregnancies were unintended. High percentage of unintended pregnancy (87.2%) was among respondents who were not using modern method of contraception prior to their most recent pregnancies. Results of the multivariate analysis indicated that several demographic, socio-economic and family planning factors influence whether a pregnancy is intended or unplanned. Women aged 35 and above (OR: 6.644), those who didn't use contraceptive prior to the recent pregnancy (OR : 2.047), those with no knowledge of modern contraceptive methods (OR : 4.068) and those married to husbands who do not approve contraceptive methods (OR: 3.962) had a higher chance of experiencing unintended pregnancy. Furthermore, those married at the age of 18 and above (OR: 0 .321), respondents who have exposure to media (OR: 0.404), women with at least primary education (OR: 0 .169), those women working outside home (OR: 0.387) and those married to husbands working in the non-agricultural sector (OR: 0.172) had lower chance of experiencing unintended pregnancy.

Conclusion and recommendation: - Unintended pregnancy was found to be a major reproductive health problem in the study area resulting from the high unmet need for family planning and thus deserves priority attention. Policymakers and program planners need to design programs and services carefully to reduce unintended pregnancy in the region, especially, services should focus on helping those groups of women who are identified in the analysis as being at increased risk of unintended pregnancy- illiterate, ,older women aged 35 and above, those who got married at early age ,those who have less knowledge and practice of contraceptive methods and those who have five or more living children and women in rural areas.

Chapter one

Introduction

1.1 Background

Maternal and child health indicators in Ethiopia show considerable room for improvement. The health care that a mother receives during pregnancy, at the time of delivery and soon after delivery is important for the survival and well-being of both the mother and the child). Pregnancy planning allows women to better control their life trajectory and contributes to the future child's health and development (WHO 2008). Individuals and couples have the right to enjoy healthy sexual lives free of unplanned Pregnancy and STIs (USAID, 2006; WHO, 2008).

The level of unintended pregnancy can be used as an indicator of women's reproductive health and of the degree of autonomy women have in determining whether and when to bear children,(Eggleston,1999).Hence, International Conference on Population and Development (ICPD) held in Cairo in 1994 and Fourth World Conference on Women was held in 1995 in Beijing have emphasized women empowerment as a basic tool for a country 's over all development and improving the quality of life of the people (Senanayake,2001). ICPD declared that advancing gender and the empowerment of women and the elimination of all kinds of violence against women, and ensuring women's ability to control their own fertility are corner stone of population and development related program (UNFPA, 1998).

The Government of Ethiopia formulated a national health sector strategy covering the period 2006-2015.The national strategy is based primarily on the existing health policy, health sector development programme, and the health extension programme and envisions contributing to the national development programme (PASDEP) and achieving the Millennium Developmental Goals (MDGs). The strategy has identified six priority areas of intervention: the social and cultural determinants of women's reproductive health; fertility and family planning; maternal and newborn health; HIV/AIDS; reproductive health of young people; and reproductive organ cancers (FMOH, 2006).

The national reproductive health strategy sets specific targets for the provision of family planning services, where it has focused on addressing reduction of unwanted pregnancies and enabling individuals to achieve their desired family size. The intervention areas outlined in the strategy include creating demand for family planning and increasing access to and utilization of quality family planning services, as well as delegating service delivery to the lowest level possible without compromising safety or quality of care (FMOH, 2006).

A decline in desired family size over time leads to a rise in the proportion of women who are at risk of having unwanted pregnancies and its consequences, particularly where contraceptive use is not optimal (Bongart, 1997). Unplanned pregnancies are the result of various factors, including lack of access to and knowledge about how to use contraceptives, difficulties in using contraceptives because of partner's or family objections; contraceptive failure and sexual assault (IPAS, 2005).

Over the six years between 1995 and 2000 there were an estimated 338 million pregnancies that were unintended worldwide (28% of the total 1.2 billion pregnancies during that period). These unintended pregnancies resulting in nearly 700,000 maternal deaths (approximately one-fifth of maternal deaths during that period). More than one-third of the deaths were from problems associated with pregnancy or childbirth, but the majority (64%) was complications from unsafe or unsanitary abortion. Most of the deaths occurred in less developed parts of the world, where family planning and reproductive health services were less available (AGI, 2009).

Unintended pregnancy is a common outcome for the more than 200 million women worldwide who want to stop having children or delay their next pregnancy but are not using an effective method of contraception. It is also a primary factor in the 46 million abortions that occur each year globally; more than one-half of unintended pregnancies result in abortion, and nearly half of all abortions are performed in an unsafe or unhygienic way (PRB 2006).

A substantial proportion of women in the developing world are not protected from the risk of pregnancy by practicing effective contraception (including sterilization), and as a result, unintended pregnancies are common. In the mid-1990s, 36 percent of all pregnancies in the

developing world were unplanned and 20 percent of all pregnancies ended in abortion (AGI 1999). Among married Ethiopian women of child bearing age (15-49), total contraceptive use stood at 14.7 percent in 2005, 13.9 percent for modern methods and 0.8 percent for traditional methods (CSA and ORC Macro, 2006).

Poverty and illness that cause unhappiness are the most important consequences of rapid population growth and un-adequate public services. A reduction in the number of unintended conceptions would have a beneficial effect on the couple's well being as well as on the population growth pattern and the country's socio-economic development (Haile, 1994).

1.2 Statement of the Problem

Among sub-Saharan African countries, Ethiopia has a rapidly growing population. The majority of the population resides in rural areas and is largely engaged in small-scale traditional farming that is highly dependent on rainfall. Between the 2000 and 2005 EDHS surveys, the TFR among women age 15-49 in urban areas declined from 3.0 to 2.4 children per women, where as it remained constant in rural areas, at 6 children per woman. The national TFR changed very little over the five year period, declining from 5.9 to 5.4 children per woman. This decline in fertility is partially the result of a concomitant increase in proportions of ever-married women currently using modern contraception (CSA and ORC Macro, 2006).

A central rationale for the establishment of organized family planning programme has been the prevention of unintended pregnancy. However, despite notable progress in expanding the reach and coverage of such programme in recent decades, the available evidence indicates that a significant proportion of pregnancies in both developed and less developed countries are unintended (Bongaarts, 1990; Brown and Eisenberg, 1995). Every day, more than 400,000 conceptions take place around the world, of which about half are deliberate and happy decisions but the rest are unintended and many of them regretted (Malcolm, 2002).

Unintended pregnancy is an important public health concern in both the developing and developed world because it is not only distressing for the affected women and children, but can also have far reaching health, social and economic consequences. Women who experience mistimed pregnancy are less likely to seek antenatal care, or seek it later during pregnancy, than

those whose pregnancies are planned (Eggleston, 1998). Avoiding unintended pregnancy could prevent about one fourth of all maternal deaths in developing countries (PRB, 1999).

The gap between wanted and actual fertility is higher in Amhara region (1.4 children) next to Oromia (1.9 children) than in the other regions. Demand for limiting number of children showed a slight increase in both urban and rural areas (from 49 to 51 percent and from 40 to 44 percent, respectively). Currently married women living in Addis Ababa, Oromia and Amhara are more likely to want to stop childbearing than women living in the other regions (CSA and ORC Macro, 2006).

EDHS, 2005 reported that over the past two decades, contraceptive use has risen and fertility has fallen substantially among all age groups however, the proportion of pregnancies resulting in live births that are reported as wanted when conceived has declined over time. About 35% of the pregnancies among married women in Ethiopia are regarded as unintended of which 19% are mistimed and 16% unwanted (CSA and ORC Macro, 2006).

Unintended pregnancy can result from contraceptive failure, non-use of contraceptives, and less commonly from rape and it can create serious health consequences for women, children and family. (Casterline et al, 2003) The issue of unintended pregnancy has been essential to demographers seeking to understand fertility, to public health practitioners in preventing unintended childbearing and to both groups in promoting a woman's ability to determine whether and when to have children. (Santelli et al, 2003).

Researchers have identified several reasons why women who do not want to become pregnant do not use contraceptives. These include little perceived risk of pregnancy, health concerns about contraceptives and side effects, opposition to use (from husbands, families, and communities), poor access to and quality of family planning supplies and services, and lack of information (Westoff, 2001).

The consequences of unintended pregnancy are serious, imposing appreciable burdens on children, women, men, families, and their societies. Both unwanted and mistimed pregnancies are known to be associated with numerous harmful behaviors and outcomes (CSA and ORC macro,

2001). The child of an unintended pregnancy is at greater risk for low birth weight, for dying in the first year of life, and of being abused or neglected (Brown & Eisenberg, 1995).

A research conducted in Harare: Ethiopia showed that 33% of women of reproductive age had experience of unintended pregnancies. (Solomon and Misganaw 2006) Another study conducted in Adama by (Biniyam, 2009) showed that 45% of reproductive age women had experience of unintended pregnancies. This study aims to determine the prevalence and the factors influencing unintended pregnancy among currently married women in Guzman woreda, Amhara region of Ethiopia. The findings also help governmental and non-governmental organizations in planning and implementing programs to reduce the risk of maternal and infant morbidity and mortality in Ethiopia, particularly, in Amhara National Regional State.

1.3 Rational and significance of the study

The following facts help the study to focus in Amhara National Regional State. Amhara region is the most populous next to Oromiya in the country and under five mortality is also among the highest three regions (Benshangul Gumuz, Gambela and Amhara) in the country (CSA, 2005). It is also characterized by high percentages of stunting, wasting and under weight of children, which is above the national average. The region is with the least proportion (6.4%) of births attended by trained personnel; female literacy rates are the lowest next to Somalia. (CSA, 2004) Furthermore, age at first marriage is the lowest (14.2 years) and the gap between wanted and actual fertility is higher (1.4 children) (CSA and ORC Macro, 2006). EDHS 2000 also reported that overall unmet need for family planning is the highest in Amahara region (41 %). This shows that the problem of fertility regulation is more serious in this region compared to other regions.

Unintended pregnancy is a subject of interest for reproductive health since it is associated with maternal mortality and other health concerns. Developing a more complete understanding of pregnancy intentions should advance efforts to develop effective strategies for the prevention of unintended pregnancies, to increase contraceptive use, to determine the unmet need for family planning services, to prevent unintended pregnancies and to provide insights into women's health behaviors.

The findings of this study aim to guide reproductive health program planners and policy makers to understand various factors influencing unintended pregnancy. It will assist in implementation of the reproductive health program which will decrease unintended pregnancy as well as reduce the risk of maternal and infant morbidity and mortality. On top of this, the study can serve as a spring board for those who are interested to extend it for further investigation in depth.

1.4 Review of Literature

Women living in every country irrespective of development status have been facing the problem of unintended pregnancy .Worldwide, 38% of pregnancies are unintended (some 80 million unintended pregnancies each year).Unintended pregnancies result in about 42 million induced) per year, and 34 million unintended births (Joseph, et al 2008).

Unintended births were most common in Peru and least common in Egypt (58% and 29%, respectively, of all births). The proportion of all births that were unwanted ranged from 11% in Kenya to 37% in Peru, and the proportion that were mistimed varied from 10% in Egypt to 39% in Kenya. In every country, unwanted births became more frequent as birth order increased and mistimed births became less frequent as the interval between births lengthened (AGI, 2003).

DHS data from 56 less developed countries found that the proportion of recent births reported to have been unwanted ranged from 1 to 36 percent, with the lowest levels generally reported in sub-Saharan Africa and the highest in Latin America and the Caribbean. The proportion of recent births reported to have been mistimed ranged from 10 to 38 per cent, with the highest levels found in sub-Saharan Africa (Westoff and Bankole, 2002).

Each year women in less developed countries have 75 million unintended pregnancies (an estimated one third of their pregnancies). It is clear that improving the knowledge of and access to contraception are essential to prevent the unintended pregnancies that lead women to risk of unsafely performed abortion (WHO, 2008).

Over all between 20-40 % of all births in developing countries are unwanted which consequently jeopardizing the health of women, children as well as posing hard ships to their families (Sedge,

2007). In addition, unwanted births pose risks for children's health and wellbeing and contribute to rapid population growth in resource strapped countries (Murray and Lopez, 1998).

Unintended pregnancies continue to burden many countries in sub-Saharan Africa. Only 17% of married women of reproductive age use a modern contraceptive method, even though a far higher proportion wants to avoid becoming pregnant soon or ever. Thirty-nine percent of pregnancies in Africa are unintended, ranging from 30% in Western Africa to 59% in Southern Africa. In 2008, about 60% of women (47million) in Africa who wanted to avoid a pregnancy but were not using family planning or were using a traditional method. These women accounted for 91% of unintended pregnancies (AGI 2009).

1.4.1 Determinants of Unintended Pregnancy

1.4.1.1 Demographic Factors

Age of women

Studies have shown that women's age is significantly associated with pregnancy intention. In Iran, younger women reported a much lower rate of unintended pregnancies compared to older women, (Abbasi-Shavazi, et al, 2004). Similarly, a study conducted in Nigeria showed that the higher the age of women, the more likely it is that the pregnancy is unintended (Okonofua et al, 1999). In Ethiopia, the percentage of unplanned births increases with mother's age at birth. More than two in five births to mothers who were aged 45-49 at the time of the birth were not planned compared with one in ten births to mothers age 25 or younger(CSA and ORC Macro, 2006).

Age at first marriage

Age at first marriage is a determining factor for unintended pregnancy. On average, women who marry early will have a longer exposure to the risk of becoming pregnant, and therefore, early age at marriage often implies early age at child bearing and higher fertility in the society which increased unintended pregnancy (MOPE, 2004). Ethiopian women generally begin sexual intercourse at the time of their first marriage. This can be seen from the identical medians in age at first marriage and age at first sexual intercourse (16.1). The early initiation of childbearing

associated with early marriage may adversely affect the health of both women and children (CSA and ORC macro, 2006).

In Ethiopia, early marriage is seen as a way to improve the economic status of the family, to strengthen ties between families, to ensure that girls are virgins when they marry, and to avoid the possibility of a girl reaching an age where she is no longer desirable as a wife. The practice of early marriage is now understood to have very harmful effects on the health, psychological and socio economic well being of young girls (as well as for the new born). Available study shows that although a high prevalence exists nationwide, the practice occurs in its extreme forms and at a higher numbers in the northern regions, particularly in Amhara and Tigray regions (CSA and ORC macro, 2006). According to NCTPE (2003), the rate is 82% in Amhara, 79% in Tigray, 64% in Benishangule, 64% in Gambella, and 46% in Afar Region.

Girls who marry before the age of 18 are disproportionately affected by complicated pregnancies that may lead to maternal mortality and morbidity (UNICEF, 2001, cited in Pathfinder International Ethiopia, 2006). Similarly, study conducted in Shanghai, China showed that strong relationship between the desired timing of the first birth and wife' age at marriage.

Number of living children

Large number of living children encourages couples to space or limit their fertility. That means the likelihood of wanting no more children increases with the actual number of living children. The 2005 EDHS reported that the desire to stop child bearing increases with the number of living children from 9 percent among women with no children to 72 percent among women with 6 or more children(CSA and ORC Macro, 2006).

A study conducted in Harare town, Ethiopia also shows that women with fewer than three children had a significantly (43%) lower chance of experiencing unintended pregnancy than women with 5 or more living children (Solomon and Mesganaw, 2006). Comparison between the two EDHS surveys show that the proportion of currently married women who want to stop childbearing has increased for all categories of living children, with an overall increase from 32 percent in 2000 to 42 percent in 2005(CSA and ORC Macro, 2006). A decline in desired family size overtime leads to a rise to the proportion of women who are at risk of having unwanted

pregnancies (Solomon, 2002). Study in Ecuador showed that women with unintended pregnancies had had an average of 3.7 previous births; while women with planned pregnancies had had 1.7 previous births (Eggleston, 1999).

1.4.1.2 Socio Economic Factors

Education

Education has a strong effect on fertility. Educated women are more likely to desire smaller families and have a stronger motivation to practice contraceptive. They are also better informed about available contraceptive options and sources and likely to use contraceptive effectively. Therefore, educated women are much more likely to have planned pregnancies (Eggleston, 1999). The higher levels of education among women are associated with higher levels of contraceptive use, smaller desired family size, and lower levels of unmet need (Lutalo et al., 2000).

The average Ethiopian woman with no education wants 4.6 children and has just over 6 children. In contrast, women with secondary or higher education want only 1.5 children and have an average of 2.0 children. Women's low educational level and their limited decision making power in their reproductive health have made them more vulnerable to the infection and pregnancy related complications (CSA and ORC macro, 2006).

On the other hand, some studies have shown that there is positive relationship or no significant association between mother's education and unintended pregnancies. For example, in Nigeria, women with a university education reported three times more likely to experience unintended pregnancy compared to those with no education (Okonofua, et al, 1999).

Occupation

Occupation expresses the socio economic status of the women that has multidimensional aspects on women's life. Employed women have higher level of interaction with the environment outside the home with employed and unemployed women. This leads to increase knowledge about the availability and accessibility of contraceptive of health services and to increase confidence in seeking and interacting with service provider (Basu, 1990).

Couples whose husbands have non-farm employment and the wives work outside home, have higher rate of unintended pregnancy than couples with husbands being a farmer and the wives do not work outside home. Working women, particularly, those who work outside are assumed to have greater control over household decisions, increased awareness of the world outside home. Consequently, they have more control over reproductive decisions (Rutherford, Thapa, and Desilva, 1989).

Place of resident

Regional variation exists with regard to fertility intention because of different socio-cultural pattern and practices. Research studies have suggested that rural women are more likely than urban women to experience unintended pregnancy. For example, the study conducted in Peru showed that the proportion of unintended pregnancy was 32% in rural area compared to only 13% in the urban area (Mensch, et al 1997).

In most cases, rural women had higher levels of unmet need for spacing and unmet need for limiting or stopping child bearing than their urban counter parts. Unmet need is nearly three times higher among women age 15-24 that live in rural areas than in urban areas. The rural urban difference in unmet need is much greater for spacing (27 percent versus 8 percent) than for limiting (5 percent versus 4 percent). The gap between wanted and observed fertility rates is also greater among women living in rural than in urban areas (1.5 and 0.6 children respectively) (CSA and ORC Macro, 2001).

Exposure to mass media

Mass media have an important effect on reproductive behavior. Throughout the world, media has influenced on knowledge, attitude and behavior regarding the use of contraception (Flora and Maibach, 1990). Exposure to family planning messages widens the horizon of understanding on issues related to contraceptive use and helps in the realization of its importance in achieving desired family size. Additionally, it contributes to the enhancement of the health of both children and mothers. Measuring the extent of exposure to such information helps programme managers and planners to effectively target population subgroups for information, education, and communication (IEC) activities (CSA and ORC macro, 2006).

The same source also revealed that consistent with the level of exposure to mass media, exposure to family planning messages varies by age. Younger women are more likely to be exposed to family planning messages than older women. Because of the limited infrastructural development in most rural communities, women and men in these parts of the country have little opportunity to be exposed to essential information on health and family planning. For example, women in urban areas are three times more likely to have heard family planning messages on the radio than their rural counterparts.

Women who are exposed to any one of three media, namely Radio, Television, or News paper had lower unmet need compared with women who had no media exposure at all (88%) (Antennae, 2002). Hence it can be concluded that media exposure leads women to adopt contraceptive methods (Westoff and Bankole 2002) which can reduce unintended pregnancy.

1.4.1.3 Spousal communication

Studies in sub-Saharan Africa indicate that inter spousal communication is beneficial for issues that are intimate to both partners. Especially beneficial is agreement on fertility intentions, desired family size, family planning, and the achievement of reproductive goals. For instance, Kimuna and Adamchak (2001), using the 1993 Kenya DHS, found that discussion of fertility and family planning between spouses and male approval of contraceptive use were important factors that influenced ever use of family planning. One study found that in Uganda's urban areas, partner opposition to contraception was a significant cause of unmet need (Wolff et al., 2000). In Ethiopia, World Bank (2005) also reports that only about one in four women (23.6 percent) make decision to use contraception on their own.

Husband's opposition may prevent his wife from using contraception, even when she wants to delay or stop childbearing (Casterline, et al., 1997). In sub-Saharan Africa, several studies have documented lack of spousal communication on reproductive health and fertility preferences as one of the factors constraining the use of family planning. Husband's approval of and discussion about family planning are important predictors of a woman's contraceptive use and fertility desires (Bongaarts and Bruce, 1995; Mahmood and Ringheim, 1997). In fact, a husband's approval of family planning is a powerful factor in explaining contraceptive use, Women who do

not know whether their husbands approve of family planning, or who believe that their husbands disapprove, are less likely to use contraception than those who believe that their husbands approve (Bongaarts and Bruce, 1995; Kamal, 2000).

Unintended pregnancy is a symbol of the pervasive inequalities in women's rights and status throughout the world. Lack of autonomy within their marital homes often means that married girls have limited access to health care or participation in decisions about their own health. Especially in a patriarchal society, women are often given less opportunity to be self supporting and have to depend on the male relatives for their survival .(Mason and Taj,1987)

1.4.1.4 Knowledge and practice of Family planning

Acquiring knowledge about family planning is an important step towards gaining access to and using a suitable contraceptive method in a timely and effective manner. Individuals who have adequate information about the available methods of contraception are better able to make choices about planning their families. But if a woman is unaware that she can regulate her fertility, does not know how to do or is unable to obtain services; she is largely incapable of avoiding unwanted and mistimed pregnancy (Brown, S. S. and L. Eisenberg, 1995).

1.4.1.5 Use of modern contraceptive method

Two-third of unintended pregnancies in developing countries occurs among women who are not using any method of contraception (WHO 2007). In the developing world, about one in four married women who wants to avoid a pregnancy is not using contraception. Many factors contribute to this unmet need for contraception, including lack of knowledge about contraception, fear of side effects, opposition from husbands, ambiguous feelings about contraception, dissatisfaction with methods, and poor access to, or a limited range of, method mix. In population with high unmet need, because the preference for fewer children is increasing, the level of unwanted fertility is rising This high level of unwanted fertility leads to high fertility and population growth rate that remain a significant impediment to development (Westoff and Bankole, 1995)

In most DHS surveys women who did not wish to become pregnant were asked to identify the main reason for not using contraception at the time of the pregnancy. Based on a study done by John Bogaarts and Judith on the collected DHS data ' s from 13 countries they have found the most important reasons for non use were lack of knowledge (25%) , health concern (20%) and husband disapproval(9%). Other reasons mentioned by the study were infrequent sex (6%), religion (4%), and low access (4%), (Bongaarts and Bruce, 1995).

Unmet need for contraception can lead to unintended pregnancies, which pose risks for women, their families, and society. Meeting unmet need means saving women lives by avoiding unwanted pregnancies and unsafe abortion. Worldwide, between 120 and 150 million married women who want to limit or space future pregnancies are not using a contraceptive method. And more than 100 million women in less developed countries or about 17 percent of all married women would prefer to avoid a pregnancy but are not using any form of family planning. These women are considered to have an “unmet need” for family planning (Ross and Winfrey, 2002).

The countries with the highest percentage of women with unmet need are in sub-Saharan Africa: Rwanda (37 percent), Malawi (36 percent), Kenya (36 percent), and Ethiopia (34 percent), (CSA and ORC Macro, 2006). EDHS 2000 reported that overall unmet need for family planning is the highest in Amahara region (41 %) and the lowest in the Afar region (12 %), (CSA and ORC Macro, 2001).

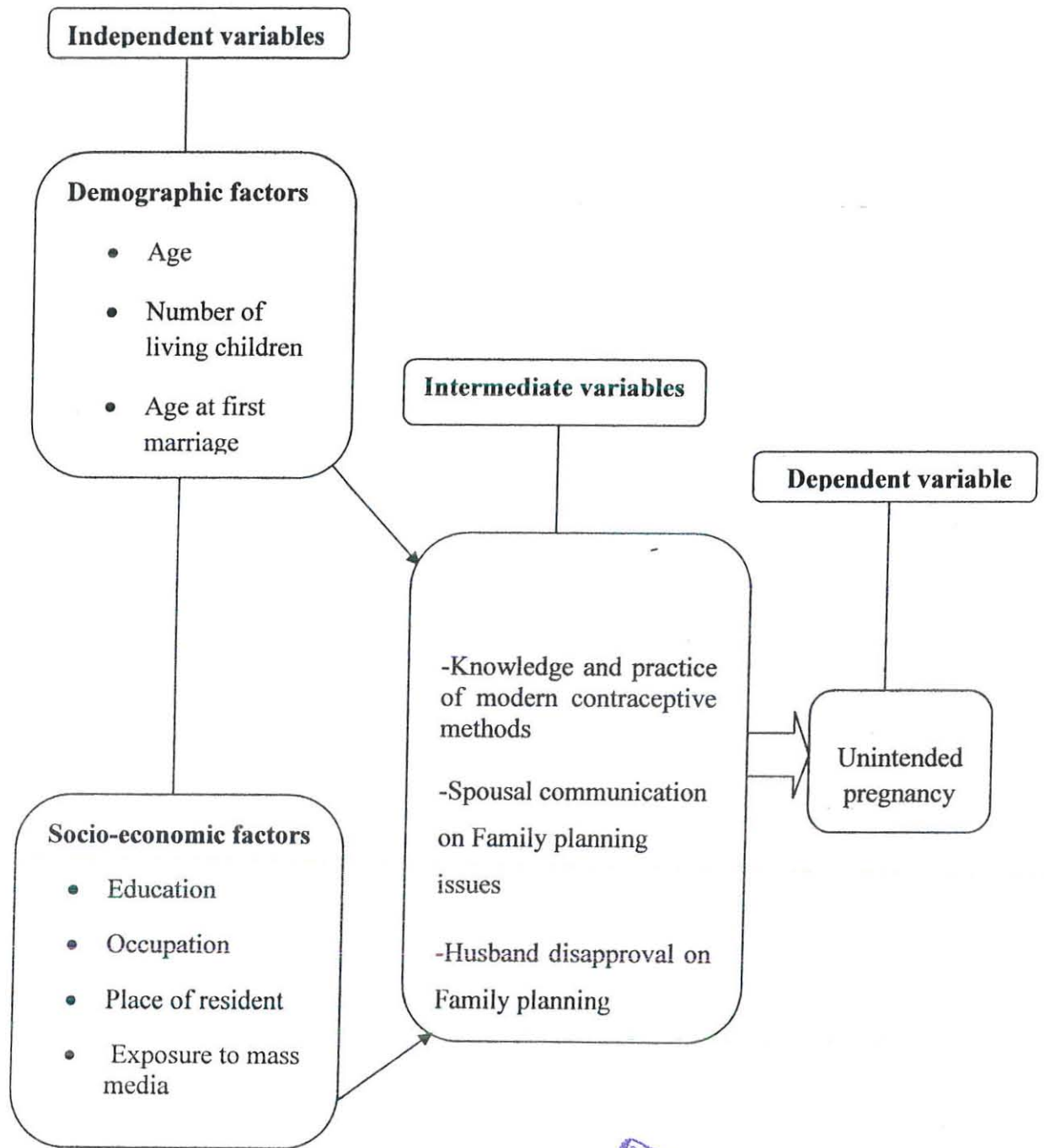
Unmet need for family planning remains a useful tool for identifying and targeting women at high risk of unintended pregnancy. Unmet need and unintended fertility: longitudinal evidence from Upper Egypt shows that the rate of unintended fertility was far higher among women with unmet need at baseline than among contraceptive users. The majority of unintended births were to women who had never practiced contraception, whereas less than one-fifth were to women with recent contraceptive experience (including contraceptive failure).The problem of unintended pregnancy in any region especially in developing countries is not easily solved since the majority of unintended pregnancies occur because of lack of access or avoidance of birth control method (WHO, 2007).

1.4.2 Conceptual Framework

On the bases of the literature review a set of conceptual frame work has been formulated about determinants of unintended pregnancy. For this study, the concept is derived from several studies of the past that have shown the relationship among various causal factors and unintended pregnancy. The conceptual framework is designed to show the influence of independent and intervening variables on unintended pregnancy. The focus is given to the effect of independent variables through intervening variables on dependent variables .The framework consists two domains of independent variables and one domain of intervening variables .Independent variables are socioeconomic characteristics and demographic characteristics. The domain of intervening variables is family planning factors.

Socioeconomic domain includes women's education, women's occupation, husband occupation place of residence and exposure to mass media. Demographic factors comprises of age of women, age at first marriage and number of living children .Family planning factors comprise as knowledge and practice of family planning, spousal disapproval on the use of family planning method and spousal communication on family planning issue.

Figure 1.1 Schematic presentation of the conceptual framework of the study.



Source: developed by the researcher



1.4.3 Objective of the Study

1.4.3.1 General Objective

The general objective of this study is to examine the determinants of unintended pregnancy among currently married women in Gozamen woreda.

1.4.3.2 Specific Objectives

- ✓ To assess the level of unintended pregnancies among married women
- ✓ To identify factors that contributes to unintended pregnancy among currently married women in the study area
- ✓ To examine the knowledge, attitude and practice of contraceptive use among the respondents of the study area
- ✓ To provide recommendations for program planners and implementation based on the findings from the study.

1.4.4 Hypotheses of the Study

- ✓ Uneducated women have low knowledge and use of family planning and higher unintended pregnancy.
- ✓ Women who are older , who have more children, who have got married in the early ages, have lower knowledge about contraception and less likely to use family planning and more likely to have unintended pregnancy compared to other.
- ✓ Women whose husband disapprove on the use of family planning methods are less likely to utilize family planning services and more likely to have unintended pregnancy compared to other.

Inclusion criteria

All currently married women aged 15-49 whose recent pregnancy occurred in the preceding five years, as well as any current pregnancy.

Exclusion criteria

Women, who were critically ill, could not talk or listen, and those who came out of the study area.

All women out of reproductive age and women not living in the study area or in the house hold were excluded from the study.

2.3 Sample size Determination

The sample size for the study was calculated using the following formula. (Cochran, 2002)

$$\text{Sample size} = p(1-p)z^2/d^2$$

The total sample size we calculated with assumption of: 95% confidence interval ($Z=1.96$), $d = 5\%$ margin of error, $P= 0.35$ (P stands for the prevalence of important factors to be studied; i.e. Proportion of married women with unintended pregnancy (EDHS 2005) and design effect= 1.5 (Since the sampling method used multistage to identify the final sampling unit) and 10% is added for an expected non response rate. Therefore,

$$n = p(1-p)z^2/d^2 * 1.5(\text{design effect}) + 10\% (\text{expected non response rate})$$

$$n = 1.96(0.35*0.65)^2 / (0.05)^2 * 1.5 + 10\%$$

$$= 349 * 1.5 + 10\%$$

$$= 524 + 52$$

$$= 576 \text{ study subject}$$

2.4 Sampling Technique

A multi-stage sampling technique was applied to select the study subjects. In the study area, there are one urban and 25 rural kebeles. First, three kebeles were selected (one from urban, and two

from rural). Two rural kebeles namely Lekilekita and Kebi were selected using simple random sampling method and Yebokila 01 town (the only urban kebele) was selected purposefully so as to see whether some independent variables have differentials across rural and urban residents or not. The second step involved the selection of eligible women. A total of 1919 households were visited in the selected kebeles and 1150 households with eligible women were listed. Thus, this listing was used as a sampling frame.

The number of households to be included in each kebele was determined in proportion with the total number of households with eligible women found in each kebele. Finally, 576 households were selected from the three kebeles for the study by using systematic random sampling. Whenever more than one eligible respondent was found in the same selected household, only one respondent was chosen using the lottery method. Thus the total sample size of the study was 576. Accordingly, 576 questionnaires were prepared and distributed. Out of these, 554 eligible women respondents were interviewed. Non-response and absentees accounted for the remaining 22 (3.8%).

Table 2.1 Distribution of respondents in the selected kebele, Gozamen woreda February 2010

Kebele Urban/rural	Population	Number of Household	Number of households with eligible women	Household sampled	Eligible women interviewed
Yebokila01 (urban)	2930	508	306	153	148
Lekilekita (rural)	3141	730	457	229	225
Kebe (rural)	2186	681	386	194	181
Total	8257	1919	1150	576	554

Source: Author's Field Survey Result

2.5 Methods of Data Collection

Both quantitative and qualitative data-collection methods were employed to conduct the study. A structured questionnaire was used for the purpose of quantitative data collection. Questionnaire was translated from English to Amharic and back to English as well to reconfirm consistency. The data collectors and supervisors were given a two day intensive training on the objectives and methods of the study; and contents of the questionnaire before the start of the pilot and the main survey. Pretest of the questionnaire was carried out in Gozamen woreda in a kebele that was not included in the study. The pre-test helps to ensure its accuracy and flexibility of the questionnaire and then modified accordingly. Pre-test was done with 30 respondents. Based on the pre test finding the time allocated to complete the questionnaire were adjusted to be 50 minutes.

Finally the actual data collection processes from sample population were conducted after every correction or comments have made on information obtained from pre-test results. The principal investigator and the supervisors rechecked all filled questionnaires daily to see whether the interviewers have done it correctly or not. Anything that was unclear or ambiguous and incomplete was corrected as early as possible. The questionnaire was used to collect information on variables such as socio economic and demographic characteristics, knowledge and attitude of contraceptive method and pregnancy related matters (such as pregnancy intention, birth history)

Qualitative information is important to answer questions that cannot be well explained by the quantitative information. This study also used qualitative data that were obtained from focus group discussions. The sample size for the focus group discussion was three groups of participants which consisted of one from health extension worker and two from ever pregnant women. Each focus group was composed of 8-10 participants. A total of 24 people (8 health extension worker and 17 ever pregnant women) participated.

2.6 Data Processing and Analysis

2.6.1 Data Processing

Data processing is important part of the whole survey operations. It includes coding, data entry, data cleaning and consistency checking. Data obtained from the questionnaire were entered, cleaned and prepared tabulation plan for using statistical data analysis (using SPSS software

version 15) techniques. Once the entry was accomplished, cleaning of data and editing employed for checking whether the designed value in each case can be defined with logical justification. Inconsistency were rectified and corrected for the purpose of analysis.

2.6.2 Data Analysis

Analyses were done through univariate, bivariate and multivariate analysis. Proportions and percentages were calculated to show the distribution of the respondents by socio-economic, demographic and family planning related characteristics. The bi-variate analysis with chi-square test is used to test possible association of the independent and intervening variables with the dependent one. Frequencies and cross tabulations show the result of the study findings and it is supplemented by the result of FGD. The chi square test doesn't say anything about how strong that association might be (doesn't consider confounding effects). As a result logistic regression analysis is applied to identify the relative importance of the various independent variables. Logistic regression is well suited for describing and testing hypothesis about the relationships between categorical dependent variables and categorical independent variables.

2.7 Ethical Consideration

Ethical approval and clearance were obtained from Addis Ababa University; Institute of Population Studies (IPS). Permission was also obtained from the concerned bodies of Gozamen woreda administration. Study subjects were included in the study voluntarily after being informed about the objective and the confidentiality of the study. To ensure privacy and confidentiality, the interview was in a convenient place chosen by respondents and the information was collected anonymously.

2.8 Strength and limitations of the study

2.8.1 Strength

The reliability of the data will be maintained by:

- ✓ Considering the most recent pregnancy to control for multiple pregnancy outcomes to the same women and to decrease problems of recall bias.
- ✓ Prior training of the interviewers and supervisors, regular supervision by principal investigator and using pretested questionnaire. And same sex interviewers were used to minimize bias.

Findings were compared with other related observations. Furthermore, combining quantitative and qualitative data was used to triangulate the findings.

2.8.2 Limitation

- ✓ Since the research is a cross sectional retrospective measure of women's pregnancy intention, such a retrospective measure can be biased, since women may not remember how they felt at the time of conception or may not wish to report a conception as unwanted or mistimed once the child born from that pregnancy has become a beloved family member. In addition, women probably underreport unintended pregnancies that do not end in a live birth (i.e. in induced abortion or some other outcome)
- ✓ The second limitation of the data relates to the percentage of women who reported being pregnant at the time of the survey, this percentage may be underreported since women may not be aware of a pregnancy, especially at the very early stages, and some women who are early in their pregnancy may not want to reveal that they are pregnant.
- ✓ Since the analysis included only currently married women, the results may not be generalizable all women of reproductive age in the study area.

2.9 Operational definitions

Antenatal care: - it is health care received by mothers at the time of their pregnancy from health professional.

Currently married women - refers to those women in the reproductive age group (15 – 49), which are living with their husbands at the time of interview

Ever use of contraceptives: – refers to use of contraceptives at least once in her life time in the past up to the time of the survey.

Kebele: - the lowest Government administrative hierarchy that exists next to woreda.

Knowledge:-defined as awareness for at least one method of contraception (mention at least the name of one modern contraception methods).

Pregnancy intention status: - Pregnancy intention status refers to planned or intended, unwanted or mistimed pregnancy

Unintended pregnancy: - refers to a pregnancy that is either mistimed (i.e., they occurred earlier than desired) or unwanted (i.e., they occurred when no children, or more children were desired) at the time of conception.

Women's autonomy:-refers to a woman' control over resources, and her ability to make decisions on her own and to act up on these decisions

Woreda: - Government administrative hierarchy that exists between kebele and zone.

Zone: - Government administration hierarchy next to regional state

Chapter Three

Back ground characteristics of the study population

This chapter deals with the background characteristics of the 554 currently married women whose most recent pregnancy occurred within the last five years prior to the survey. It includes socio-economic factors such as education, residence, occupation and exposure to mass media as well as demographic factors like, age, number of living children, age at first marriage, and family planning related factors like knowledge, practice and attitude towards contraceptive method.

3.1 Socio-Economic Characteristics

The socio- economic background characteristic of all respondents is presented in Table 3.1. About three quarters of the respondents (73.3%) were rural resident. As the dominant religion in the area is Orthodox Christianity, almost all of respondents are followers of Orthodox Church. In terms of literacy, (60.3%) were illiterate,(11.7%) can read and write,(24.0%) had primary school education and only 4% of respondents had secondary and above education. Regarding their occupation, the majority of wives (82.1%) and husbands (78.2%) were housewives and farmers respectively. Only 6.9% of wives and 5.6% of husbands were employed in government or nongovernmental organization. As far as exposure to mass media more than half of the respondents had no exposure to media (radio and television).

Table 3.1 Percentage distributions of respondents by reported socio-economic characteristics, Gozamen woreda Woreda, 2010

Characteristics	Number	%
Place of residence		
Rural	406	73.3
Urban	148	26.7
Ethnicity		
Amhara	551	99.5
Others	3	0.5

Characteristics	Number	%
Education		
Illiterate	334	60.3
Read and write	65	11.7
Primary	133	24.0
Secondary and above	22	4.0
Religion		
Orthodox	550	99.3
Others	4	0.7
Exposure to media		
No exposure	330	59.6
Exposure to media	224	40.4
Occupation(wife)		
House wife	445	82.1
Government(NGO) employee	38	6.9
Daily laborer	18	3.2
Merchant	25	4.5
Farmer	18	3.2
Husband occupation		
Government(NGO) employee	31	5.6
Daily laborer	28	5.1
Merchant	62	11.2
Farmer	433	78.2

Source: Author's Field Survey Result

3.2 Demographic Characteristics

A little less than a quarter (24.2%) of the respondents was in the age group 15-24 while 44.2 percent and 31.6 percent were in the age group 25-34 and 35 and older respectively. A little over half (51.4%) and nearly one third (29.2%) of the respondents got married at early age, below age 15 and 15-17 respectively. And close to one quarter (19.3%) of respondent got married after the age of 17. Regarding age at first pregnancy, a little over half (51.3%) of the respondents had their first conception before age 18. Concerning number of living children 43.1% of the women had 0 to 2 living children and 37.5% of respondents had 3 to 4 living children and 19.3% of respondents had five or more living children.

Table 3.2 Percentage distributions of respondents by reported demographic characteristics, Gozamen woreda Woreda, 2010

Characteristics	Number	%
Age		
15 -24	134	24.2
25-34	245	44.2
35 and above	175	31.6
Age at first marriage		
<15	285	51.4
15 – 17	162	29.2
17+	107	19.3
Age at first pregnancy		
<18	284	51.3
18 and above	270	48.7
Number of living children		
0-2	239	43.1
3- 4	208	37.5
5+	107	19.3

Source: Author's Field Survey Result

3.3 Knowledge, attitude and practice of modern contraception

A woman who does not know about contraception is not expected to use any type of contraceptive methods. Hence, the level of awareness of contraception and the sources where one can obtain them are essential preconditions for using contraception. During the interview, respondents were asked whether they had heard of ways or methods that a wife or husband could use to delay or avoid pregnancy. If the respondents had heard of such methods, they were further asked to name these methods.

It appears that the level of knowledge of contraceptive methods is varying in the study area. About eighty two percent (82%) of the respondents had heard about contraceptive methods (fig 3.1).Of these, 68 % knew utmost two methods and only 14% knew at least three methods. Respondents whose husband disapprove family planning were about 72.2 % (table 3.3)

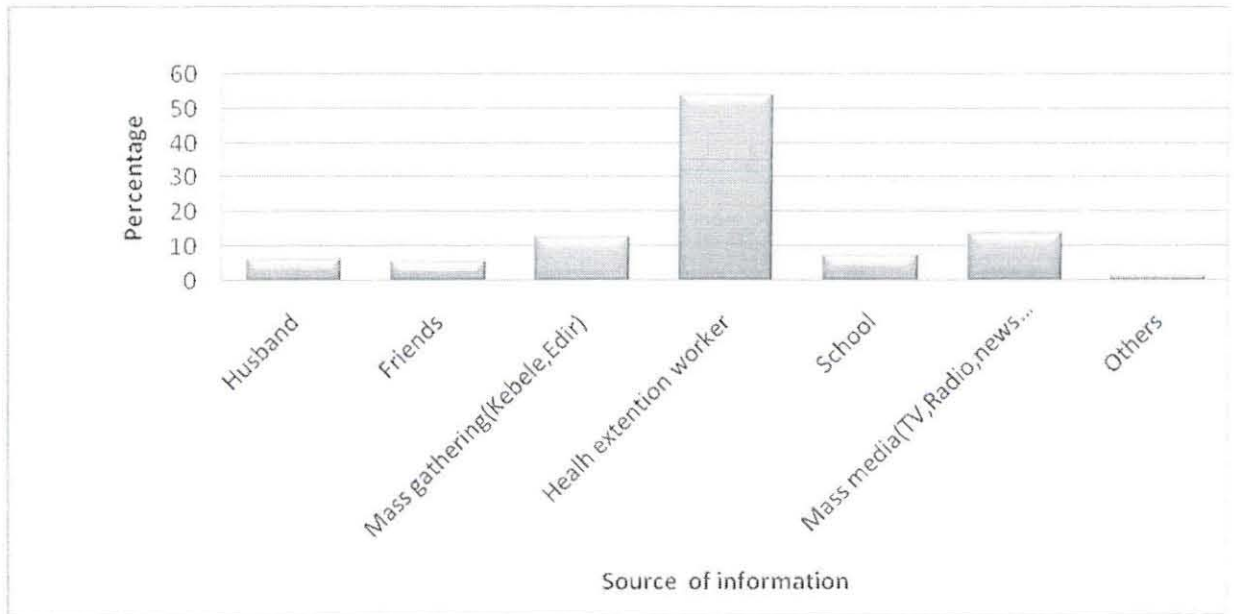
Table 3.3 Percentage distributions of respondents by Knowledge and attitude of Family planning methods, Gozamen woreda Woreda, 2010

Characteristics	Number	percent
Ever heard of modern contraceptive		
Yes	454	82
No	100	18
Knowledge of modern contraceptive methods		
Don't know	97	17.5
Know at most two method	378	68.2
Know at least three method	79	14.3
Discussion about family planning with partner		
Yes	432	78
No	122	22
Husband approval on the use contraceptive method		
Approve	400	72.2
Disapprove	154	27.8

Source: Author's Field survey result

As indicated in Figure 3.3 the most frequently mentioned source of information for contraceptive methods were health extension workers (53.8%) followed by mass media (13.6%) and mass gathering including kebele and edir (12.5%).

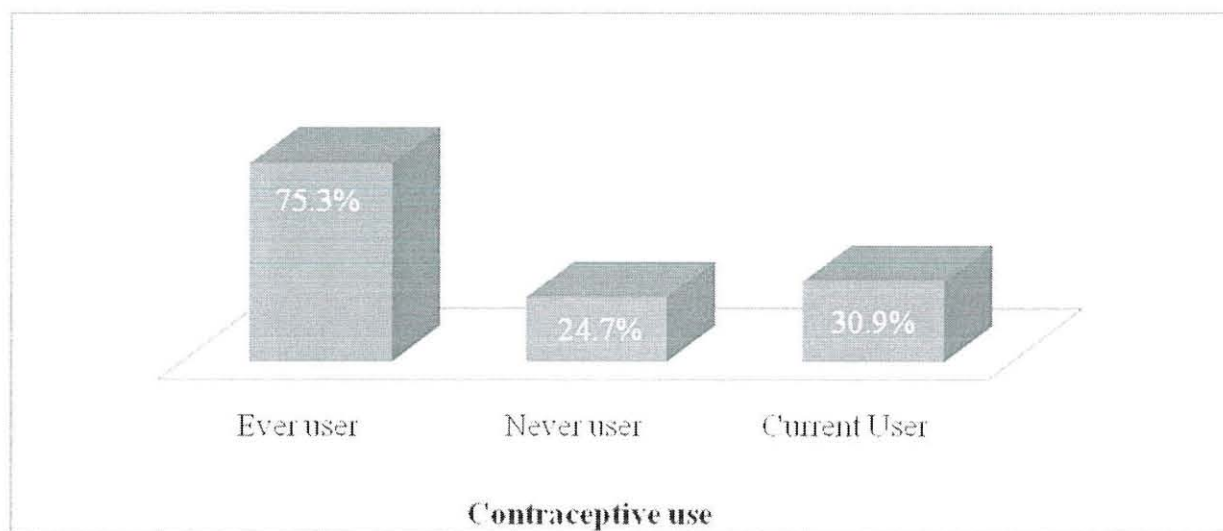
Figure 3.1 Percentage distributions of respondents by Source of information about Family planing methods, Gozamen woreda *Woreda*, 2010



Source: Author's Field Survey Result

As it is illustrated in Figure 3.4, three quarter of the respondents were ever users of modern contraceptive methods and 30.9% of respondents were currently practicing modern contraceptive methods.

Figure 3.2 Percentage distributions of respondents by intention to use modern contraceptive methods, Gozamen woreda Woreda, 2010



Source: Author's Field Survey Result

As shown in table 3.3, about four fifth (80%) of respondents didn't use any type of modern contraceptive before recent pregnancy.

Table 3.4 Percentage distributions of respondents by contraceptive use prior to the most recent pregnancy, Gozamen woreda Woreda, 2010

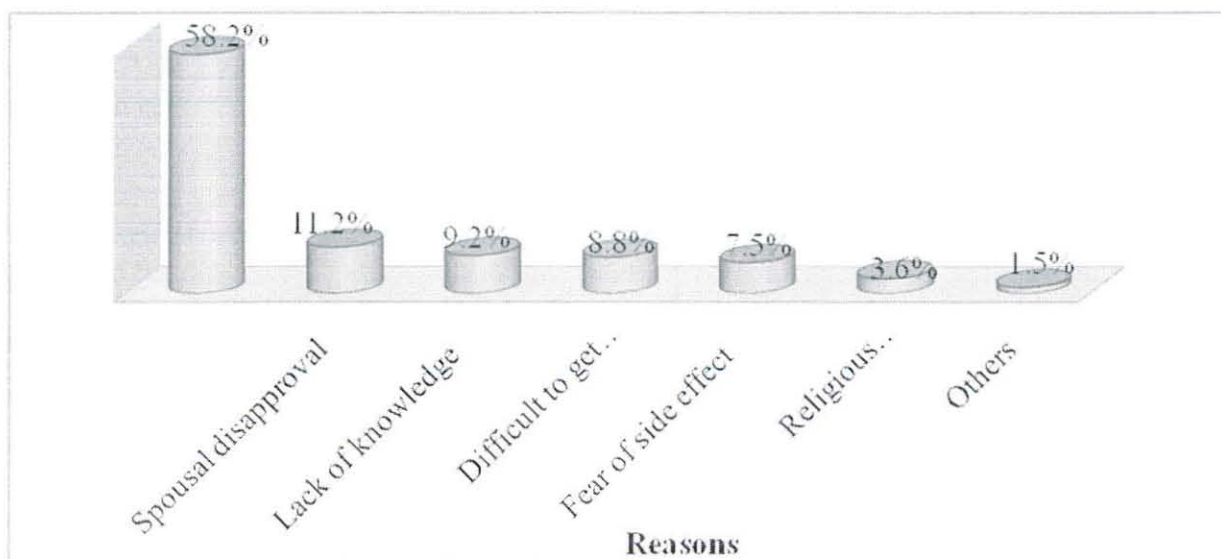
Contraceptive practice prior to the most recent pregnancy	Frequency	Percentage
Yes	110	19.9
No	444	80.1
Total	554	100.0

Source: Author's Field Survey Result

As shown in figure 3.5, Respondents of this study reported the following reasons for non use of contraceptive before recent pregnancy .The most important reason identified were desire to have more children (58.2%) spousal disapproval (11.2%), lack of knowledge (9.2%), difficulty to get

the method (8.8%), fear of side effect (7.5%), and the least important reasons identified were religious prohibition (3.6%)

Figure 3.3 Distribution of respondents by their reasons for nonuse of modern contraceptive method before last pregnancy, Gozamen woreda Woreda, 2010



Source: Author's Field Survey Result

The current reproductive status of women is illustrated in table 3.5 .About 10.3 percent of the women in the study were pregnant at the time of the survey.

Table 3.5 Percentage distributions of respondents by current pregnancy status

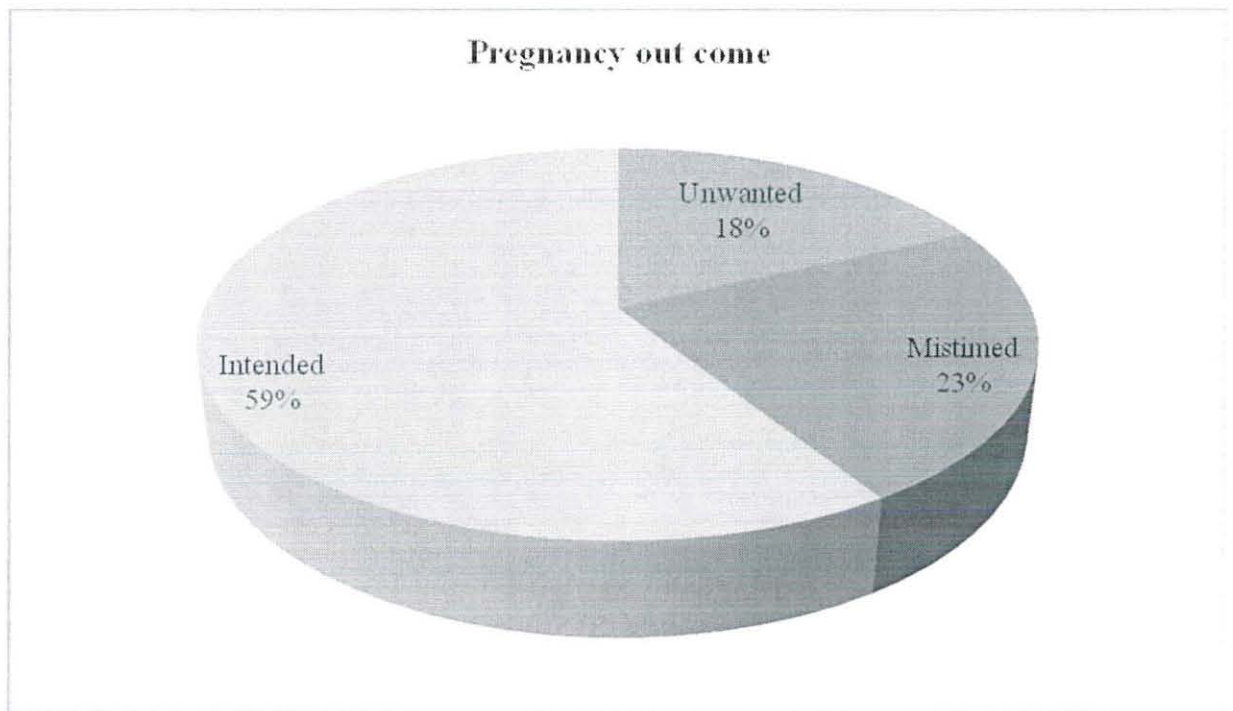
Current pregnancy status	Frequency	Percentage
Yes	57	10.3
No	462	83.4
Not sure	35	6.1

Source: Author's Field Survey Result

Figure 3.6, shows the intentions of the women about their recent pregnancies. 23 percent of respondents mentioned that they wanted their pregnancies later (mistimed) and the other 18 % reported that they did not want at all their recent pregnancies (unwanted) .Combining these two

categories labeled as unwanted and mistimed ,A little over two fifth of the respondents (41%) reported their recent pregnancies were unintended .

Figure 3.4 Percentage distribution of respondents classified by their pregnancy intention, Gozamen woreda Woreda, 2010



Source: Author's Field Survey Result

Chapter Four

Determinants of Unintended pregnancy

Unintended pregnancies are expected to vary between different populations or between groups within the same population. These variations are expected to be associated with the socio economic, demographic and family planning characteristics of women.

4.1 Bi-variate Analysis

4.1.1 Unintended pregnancy and Socio economic characteristics

As it is illustrated in Table 4.1, women who were residing in rural areas have higher unintended pregnancy than of urban dwellers, 43.6% and 33.1% respectively. The result implies that respondents who were residing in urban areas had significantly lower rates of unintended pregnancy than those in rural areas. Moreover, women who have been exposed to mass media such as radio and television are less likely to have unintended pregnancy compared to those with no exposure to mass media.

More than half of illiterate women (52.9%) and one tenth of women (10%) with at least primary education had unintended pregnancy. Regarding women's occupational status ,women who reported to be house wife (working at home) had higher rate of unintended pregnancy (47.0%) compared with those women who are working outside home (government employee ,daily laborer, merchant, farmer) (7.9%, 16.7% , 8.0% , 22.2%) respectively .

Concerning occupational status a slightly higher proportion(50.1%) of women married to husbands whose occupation is agriculture or farming had unintended pregnancy compared with those engaged in non agricultural activities (government employee, daily laborer, merchant) (9.7%, 14.3%, 3.2%) respectively.

Table 4.1 percentage distribution of the respondents according to their pregnancy intention by socio-economic factors, Gozamen woreda *Woreda*, 2010

Characteristics	Unintended Freq. (%)	Intended Freq. (%)	X ²	P value
Place of residence				
Rural	177(43.6%)	229(56.4%)	4.940	0.026
Urban	49(33.15%)	99(66.9%)		
Education				
No schooling	210(52.9%)	187(47.1%)	84.955	0.000
Primary and above	16(10.2%)	141(89.8%)		
Occupation(Husband)				
Gov't (NGO) employee	3(9.7%)	28(90.3%)	72.381	0.000
Daily laborer	4(14.3%)	24(85.7%)		
Merchant	2(3.2%)	60(96.8%)		
Farmer	217(50.1%)	216(49.9%)		
Occupation(Wife)				
Housewife	214((47.0%)	241(53.0%)	42.403	0.000
Gov't (NGO) employee	3(7.9%)	35(92.1%)		
Daily laborer	3(16.7%)	15(83.3%)		
Merchant	2(8.0%)	23(92.0%)		
Farmer	4(22.2%)	14(77.8%)		
Exposure to media				
Have no exposure	182(55.2%)	148(44.8%)	69.656	0.000
Exposed to radio or TV	44(19.6%)	180(80.4%)		

Source: Author's Field Survey Result

4.1.2 Unintended pregnancy and Demographic Characteristics

Age of the respondents was significantly associated with unintended pregnancy. The proportion of women who had unintended pregnancy was greater among older women, that is those in the age group 35 and above (68.0%) than those of age groups 15-24 (34.3%). But it tends to decrease among the age group 25-34 which is (24.9%).

The bivariate result indicates that women's age at first marriage is significantly associated with unintended pregnancy. Table 4.2 depicts that the level of unintended pregnancy decreases with increasing age at first marriage. Women who got married before age 18 are almost four times (63.4%) more likely to have unintended pregnancy than those who got married at age 18 and older (16.7%).

Number of living children seems to be associated with level of unintended pregnancy. The level of unintended pregnancy was higher for those women who had 5 or more children (83.2%) and lower level of unintended pregnancy was found among women who had 3 or 4 living children (30.3%) but 31% among those women who had less than 2 living children.

Table 4.2 percentage distribution of the respondents according to their pregnancy intention by demographic factors, Gozamen woreda Woreda, 2010

Characteristics	Unintended Freq. (%)	Intended Freq. (%)	X²	P value
Age				
15-24	46(34.3%)	88(65.7%)	81.581	0.000
25-34	61(24.9%)	184(75.1%)		
35 and above	119(68.0%)	56(32.0%)		
Age at first marriage				
Less than 18	210(47.0)	237(53.0%)	36.664	0.000
18 and above	16(15.0%)	91(85.0%)		
Number of living children				
0-2	74(31.0%)	165(69.0%)	98.652	0.000
3-4	63(30.3%)	145(69.7%)		
≥5	89(83.2%)	18(16.8%)		

Source: Author's Field Survey Result

4.1.3 Knowledge, attitude and practice of contraceptive method and unintended pregnancy

Discussion of family planning with partner has its own impact on contraceptive use .The data in Table 4.3 shows that there is an association between unintended pregnancy and discussion of family planning issues with partner. Among couples who do not have discussion on family planning issues at all, 73% have a probability of experiencing unintended pregnancy. Wives married to husbands who approved the use of contraceptive methods have a lower chance of having unintended pregnancy. Nearly three fourth (74.7%) of women whose husbands did not approve the use of family planning had an intended pregnancy.

It is observed that unintended pregnancy decreased with the increased number of method known. Nearly four fifth (78.4%) of unintended pregnancy have among women who did not know any type of modern contraceptive method and only 8% are among those who had knowledge of at

least three methods. This may be because women who know a number of methods are likely to become users of methods.

Contraceptive use before last Pregnancy seems to be associated with level of unintended pregnancy. Those who did not use contraceptive before last Pregnancy were more likely to have unintended pregnancy than those who used contraceptive. Close to ninety percent (87.2%) of those who did not use contraception before the last pregnancy had unintended pregnancy but 12.8% women became pregnant while using contraception.

Table 4.3 percentage distribution of the respondents according to their pregnancy intention by family planning factors,Gozamen woreda Woreda, 2010

Characteristics	Unintended Freq. (%)	Intended Freq. (%)	X ²	P value
Knowledge of contraceptive				
Do not know	76(78.4%)	21(21.6%)	93.838	0.000
Know at most two	144(38.1%)	234(61.9%)		
Know at least three	6(7.6%)	73(92.4%)		
Discussion about family planning with your partner				
Yes	137(31.7%)	295(68.3%)	66.983	0.000
No	89(73.0%)	33(27.0%)		
Husband approval on the use of contraceptives				
Approve	111(27.8%)	289(72.3%)	101.373	0.000
Disapprove/Don't know	115(74.7%)	39(25.3)		
Contraceptive use before last Pregnancy				
Yes	29(12.8%)	81(24.7%)	11.834	0.001
No	197(87.2%)	247(75.3%)		

Source: Author's Field Survey Result

4.2 Multivariate Analysis

Since the dependent variable is dichotomous, a binary logistic regression model was used to assess the net effect of each of the independent variables on the dependent variable, while controlling for the other variables in the model. Logistic regression was also used to predict the probability of unintended pregnancy for the independent variables which were found to have significant effect and conceptual importance in the model.

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

Likewise, the VIF, which is simply the reciprocal of tolerance shows whether or not the explanatory variables are related with each other. When VIF is high there is high multicollinearity and instability of the beta coefficients. $VIF \geq 4$ is an arbitrary but common cut-off criterion for deciding when a given independent variable displays "too much" multicollinearity: a value above four suggests a multicollinearity problem (Schwarz, 2007). As presented in annex C, the values of VIF in the model were highly less than four. Therefore, the multicollinearity problems in the models were already defeated. After assessing multicollinearity in the variables, it was found that the variables 'age of respondent' and 'number of living children' were highly correlated. So the variable 'number of living children' was not entered in the logistic regression model.

With respect to the goodness of fit of the models, there are various ways to assess the extent to which the models fit the data. One way of assessing how the models fit the data is by using the Hosmer and Lemeshow goodness of fit test. Insignificant value of this test shows the goodness a

model. In this study, as shown in annex C, the values of Hosmer and Lemeshow tests were insignificant for the model. Hence, the model was fitted well with the data.

The binomial logistic regression analysis indicated that age, occupation, age at first marriage, educational status, Knowledge and practice of modern contraceptive methods and husband disapproval on family planning were statistically significant contribution to explain the dependent variable at $p < 0.05$ level. However, place of resident was not statistically significant contribution to explain the dependent variable at $p < 0.05$ level.

Age of the respondents was found to be one of the predictors of unintended pregnancy. The risk of experiencing unintended pregnancy among women at the age 35 and older was six times higher than those women of age 29 and younger to say their pregnancy had been unintended. This finding confirms the hypothesis that older women (35 and above) are more likely to have unintended pregnancy compared to the younger (aged 29 and younger).

The odds ratio of having unintended pregnancy was found to be 0.321 for those whose age at first marriage was below age 18. This means that women whose age at first marriage at 18 years and older were 0.321 times less likely to have unintended pregnancy compared to those whose age at first marriage was at age 17 years and younger. These findings are found to be conformal to the hypothesis, the level of unintended pregnancy increases with decreasing age at first marriage

In Table 4.4, the odds ratio $\text{Exp}(B) = 0.404$ for those who have access to mass media. Women who have access to media have negative relation with unintended pregnancy, with a significant p-value 0.001. Women who have exposure to media were found to be 60% less likely to have unintended pregnancy than the respondents who didn't have any exposure to media,

The multivariate analysis indicates as educational status increases the likely hood of the women experiencing the pregnancy unintended decreases. The result shows that the odds ratio of having unintended pregnancy is 0.169 and it is highly significant at p-value 0.000. From this we can infer that respondents with primary and higher level of education were 0.169 times less likely to experience unintended pregnancy compared to those with no education. This could be explained

by the potentially higher ability of the educated women to receive and understand the family planning messages. These findings are also found to be conformal to the hypothesis; Women's education is negatively associated with unintended pregnancy.

Occupation also considered in the model and the result shows women who are working outside home (OR: 0.387) and husband whose occupation is non agricultural activities (OR: 0.172) were less likely to experience unintended pregnancy. On the other hand, respondents whose husband disapprove family planning were 3.9 times more likely to have unintended pregnancy than those whose husband approve family planning. This means husband disapproval on contraceptive methods increases the likelihood of unintended pregnancy.

The other important variable for unintended pregnancy in the logistic regression analysis was knowledge of contraceptive method. The odd of experiencing unintended pregnancy among women who has no knowledge on contraceptive method was 4 times higher than among women who have at least one method.(Lack of knowledge on contraceptive methods increases the likelihood of unintended pregnancy) Furthermore, one important determinant of unintended pregnancy is practice of modern contraceptive method. In the present study, respondents who were not using modern method of contraceptive prior to their most recent pregnancies were 2 times more likely to have unintended pregnancy than those who tried to use methods.

Table 4.4 Results of logistic Regression Analyses on unintended pregnancy, unmet need for contraception, Gozamen woreda Woreda, 2010

Variable	B	SE	Sig	Exp(B)
Resident Rural(RC)				1.000
Urban	-0.112	0.285	0.693	0.894
Age of the respondent < 30 (RC)				1.000
30-34	0.675	0.291	0.021	1.964
35 and above	1.894	0.367	0.000	6.644
Occupation(wife) House wife(RC)				1.000
Others	-0.950	0.415	0.022	0.387
Age at first marriage <18(RC)				1.000
18 and above	-1.135	0.377	0.003	0.321
Occupation (husband) Farmer (RC)				1.000
Others	-1.758	0.419	0.000	0.172
Exposure to mass media No exposure(RC)				1.000
Exposure to media	-0.950	0.267	0.001	0.404
Husband disapproval on Family planning Approve(RC)				1.000
Disapprove	1.377	0.278	0.000	3.962
Contraceptive practice before last pregnancy Yes(RC)				1.000
No	0.716	0.332	0.031	2.044

Educational status				
No schooling (RC)				1.000
Primary and above	-1.780	0.354	0.000	0.169
Knowledge of the respondent on contraceptive method.				
Know at least one method (RC)				1.000
Don't know any methods	1.403	0.328	0.000	4.068

Note: RC- Reference category, $P < 0.05$ – significant

Chapter Five

Discussion on major findings

This study comprises 554 currently married women whose most recent pregnancy occurred within the last five years prior to the survey. The majority of women in this study were illiterate, which may be related to the low access to education. The large number of women report that they obtained the information on contraceptive method mainly from health extension worker.

According to this study, two fifth (40.8 %) of the respondents reported that their most recent pregnancy was unintended of which 23% mistimed and 18 % unwanted. These are the similar findings to the study conducted in Nepal showed about 41% of women reported their current pregnancy was unintended (Adhikari, 2005). And study conducted in Jordan also showed, about 40 percent of women reported that their most recent pregnancy was unplanned at the time, of which 20 percent was mistimed and 20 percent reported that it was unwanted. (Johnson et.al 200) But the proportion of women who had unintended pregnancy was found to be greater than the proportion mentioned in EDHS, 2005 (35percent) and a study done in Harar (33 percent) (Solomon and Misganaw, 2006). This might be due to most of women in the study area had no education are least likely to use family planning and family planning methods are least accessible to them.

The bivariate analysis showed that the variables such as resident, age, age at first marriage, literacy status, occupation of wife and husband, number of living children, exposure to media husband disapproval ,spousal communication, knowledge and practice of contraceptive methods prior to the most recent pregnancy are important to explain unintended pregnancy. The multivariate analysis supported most of the bivariate analysis and indicated the same pattern of effect for most of the variable .In multivariate analysis, age, age at first marriage, literacy status, occupation of wife and husband, exposure to media, husband disapproval, knowledge and practice of contraceptive methods prior to the most recent pregnancy were found to have statistically significant influence on unintended pregnancy.



This study has shown that the higher the age of women, the higher the probability of having recent pregnancy as an unintended. It is similar to the study conducted in currently married pregnant women in Iran (Abbasi-Shivazi, 2004) and all women of reproductive age in Nigeria (Okonofua et al, 1999). Studies conducted by EDHS, 2000 also confirmed that the percentage of unplanned births increases with mother's age at birth (CSA and ORC macro, 2006) .This might be due to the fact that young women have not achieved their expected number of children.

It is generally accepted that early marriage lengthens the reproductive span in which conception can occur. As a result age at first marriage has the influence on the level of unintended pregnancy. Women in the study area were found to experience marriage and childbearing in their early ages. Like the study in Nepal (Adhikari, 2005), we found significant negative relationship between age at first marriage and unintended pregnancy in the study area. Similarly it was indicated that in Vietnam the likelihood of unintended pregnancy was associated with age at first marriage. Women who were married before the age of 20 had a risk of unintended pregnancy 1.5 times greater than those who married later, (Lea et al, 2002). One of the reasons could be early marriage leads to earlier initiation of sexual intercourse, which exposes women to an extended period when they are at risk of getting pregnant and is thus related to a higher likelihood of experiencing unintended pregnancy. It is generally accepted that early marriage lengthens the reproductive span in which conception can occur. As a result age at first marriage has the influence on the level of unintended pregnancy.

Both the bivariate and multivariate result showed that those who had exposure to mass media (radio /television) were less likely to report unintended pregnancy compared to those who didn't have exposure to media. It means mass media has played an important role to reduce unintended pregnancy because it gives wider range of knowledge and leads to adopt contraception and sensitizes couple about the family norms so that they have low parity and low unintended pregnancy (Westoff and Rodriguez, 1990).

It is obviously clear that women with higher knowledge about contraceptives are more probable to use contraceptive methods than others. The study indicates negative effect of knowledge about contraception on likelihood of unplanned pregnancy. The similar result is found in Ecuador as

well (Egggleston, 1999). If a woman has higher knowledge of methods, she is more likely to be aware of the benefits of those methods which in turn will motivate her to use the methods and less likely to have unintended pregnancy.

Many studies have confirmed that education and unintended pregnancy are negatively correlated. Both multivariate and bivariate analysis confirms that there is strong association between educational attainment and rate of unintended pregnancy. This study finds that education is an important issue for deciding pregnancy intention. A study conducted in Jordan revealed unintended pregnancy decreases monotonically with education. Women with no education were more likely than other educational groups to say that their last pregnancy was unintended (Johnson, et al, 2004).

Another study conducted in Bangladesh also showed that women who had no education were more likely than better educated women to have unintended pregnancies because they might have more modest expectations of their ability to control the timing of their pregnancies (Islam and Rashid, 2005). Results from FGD shows *majority of participants agreed that educated people talk about the number of children they want to have, they plan and discuss about the number of births but this is not true for illiterate people who have more children till they stop by nature.*

Use of contraceptive method has significant relationship with intended pregnancy status of women. In many literatures, the result come out from this study is similar with usual. Unintended pregnancy in this research mainly can result from non-use of contraceptives. High percentage of unintended pregnancy (87.2%) was among respondents who were not using modern method of contraception prior to their most recent pregnancies. Among the reasons cited for non-use of modern contraceptive were the need for becoming pregnant; husband disapproval, health concern, lack of knowledge and being unaware of the source of contraception were the five major ones. *The focus group discussion conducted on health extension worker reported that most nonusers of family planning never come into contact with a health worker who could provide information and access to family planning, and those who do use family planning do not receive all the necessary information to make informed choices and select a method that is most appropriate for their circumstances. This contributes to contraceptive discontinuation.*

This study in line with a study done in Egypt (Casterline, et al, 2003) which revealed that, the majority of women were nonusers of contraceptives (73.6%) and had higher unintended pregnancy rates compared with those who have ever-used contraceptive methods. The 2000 and 2005 EDHS data also showed that reasons for nonuse of contraceptive were categorized into health related reasons, method-related reasons, opposition to use, and lack of knowledge (CSA and ORC Macro, 2001; CSA and ORC Macro, 2006) Identifying the major reasons for nonuse of contraceptives is important in designing and implementing appropriate family planning intervention strategies

Unintended pregnancy can also result from method failure, inconsistent or incorrect usage. (CSA RC Macro, 2006) The result shows about 12.8 % of respondents had become pregnant while using contraceptive. *Results from focus group discussion conducted on health extension worker suggested that effective contraceptive methods are one of the most important factors in preventing unplanned pregnancies so that family planning information and services have to be available for all the women who want to use them. For all sexually active women and men, consistent use of family planning is the only way to control unwanted childbearing.*

The study shows women engaged in work outside their home tend to have smaller number of unintended pregnancy as compared with those who work inside the home or house wives. In addition, husband occupation also important variable to determine the level of unintended pregnancy. This finding was consistent with a prior study done in Egypt (Casterline et al, 2003) unintended pregnancy was more prevalent among those whose husband worked in the agriculture sector.

The study finding revealed that lack of interest in family planning on the part of the husband was persistent, which may have a retarding effect on women's motivation to use modern contraception. *The focus group discussion conducted on ever pregnant women shows that, in the study area, a significant number of women are unable to decide the number of children they want and the time when to have them. Husband, in most of the household is the head of the family as well as the decision maker. The mandate on deciding fertility regulation is significantly in the hands of such husbands disregarding their wives opinions.*

The bivariate analysis shows Spousal communication is found to be strongly associated with unintended pregnancy. This is due to the fact that husband-wife communication on matters pertaining to family planning and reproductive health provides an enabling environment for couples to implement their fertility desires and contraceptive needs. Lack of communication between wives and husbands creates barriers to contraceptive use which result in unplanned pregnancy (Casterlin and Sinding 2003). *The participants from focus group discussion agreed that the discussion between couples about the number of children and types of contraceptive methods initiates them to use the methods. The discussion may help them to arrive in decision to use contraceptives.*

The bivariate analysis of this study shows that women with high number of living children were found to be at a higher risk of unintended pregnancy. Accordingly, the result was in line with the hypotheses stated as women with large number of living children and who desire to have no more children are expected to have a relatively high rate of unintended pregnancy. This study similar with a study done in Ethiopia: Harar town (Solomon and Misganaw, 2006) showed that the odds of experiencing unintended pregnancy were lower for women with less than 4 numbers of living children compared with those women who had 5 or more living children. Another study done in Bangladesh also showed that women having no child, having 1 to 2 children, having 3 to 4 children were 99 percent, 96 percent, 54 percent respectively were less likely than the women with more than 5 living children to report that a pregnancy was unintended (Islam and Rashid, 2005).

The effect of place of residence on unintended pregnancy can be explained by the fact that urban residents have better knowledge, access to contraceptives and therefore are more likely to use contraceptives than their rural counterparts. As a result of this, urban women have lesser unintended pregnancy as compared with rural women. The bivariate analysis of this study revealed that unintended pregnancy was significantly associated with place of resident. Urban women were less likely to report that their pregnancy was unplanned than rural women (33 percent compared with 43 percent). Similar study conducted in Jordan showed that urban women were less likely to report that their pregnancy was unplanned than were rural women (62 percent

compared with 55 percent) (Johnson et.al 2004).Such regional disparities may be due to cultural factors as well as to differences in the availability and quality of family planning services. But the multivariate analysis of this study revealed that place of resident was not statistically significant contribution to explain the dependent variable at $p < 0.05$ level.

This study has found out the underlying cause of high prevalence of unintended pregnancy which helps in order to be better understood and appropriately addressed by the reproductive health programs. This study has also identified who are at the risk of unintended pregnancy that helps to the program planners and policy makers to focus in some particular identified aspects of the program and improve the effectiveness of health services in terms of information on contraceptive methods and access to the services. Finally these results identify opportunities for interventions that could substantially improve the overall health status of the family can be improved with appropriate birth spacing and family size.

Chapter Six

Conclusion and recommendation

6.1 Conclusion

Unintended pregnancy is a potential hazard for every sexually active woman .It is a worldwide problem that affects women, their families ,society and nation. There is no doubt that understanding of the determinants of unintended pregnancy will lead to improvements in efforts to avoid such pregnancies, and improve the well-being of women and children (Santelli J et al, 2003) Avoiding mistimed or unwanted pregnancy would have noticeable effect in bringing down the level of infant mortality and thereby improving the health of women.

The study sample consisted of 554 currently married women whose most recent pregnancy occurred five year prior to the survey .The present study has found that slightly more than two fifth of the respondents (23%) had mistimed pregnancy and other 18% had unwanted pregnancy. Combining the two categories labeled as unwanted and mistimed, two women out of five (41%) reported their recent pregnancies were unintended.

High percentage of unintended pregnancy (87.2%) was among respondents who were not using modern method of contraceptive prior to their recent pregnancies. The reasons cited for non-use of modern contraceptive were the need for becoming pregnant; husband disapproval, health concern, lack of knowledge and being unaware of the source of contraception. And about 12.8 % of respondents had become pregnant while using contraceptive from which might be result from method failure, inconsistent or incorrect usage.

The result of the logistic regression analysis showed that:-

There is one variable that have no statistically significant contribution to explain the dependent variable at $p < 0.05$ level (i.e. Place of resident). Most variables have categories that have made a statistically significant contribution at $p < 0.05$ level to explain the dependent variable. These are: age, education age at first marriage, occupation, exposure to media, husband disapproval, knowledge and practice of contraceptive method prior to the most recent pregnancy.

The findings of multivariate analysis have confirmed the hypotheses that proposed as; older women are more likely to have unintended pregnancy compared to the younger, the level of unintended pregnancy increases with decreasing age at first marriage and spousal disapproval on family planning methods negatively affects unintended pregnancy Furthermore, the findings of bivariate analysis have confirmed the hypotheses that proposed as, the level of unintended pregnancy increases with increasing number of living children.

In conclusion, the unintended pregnancy rate among currently married women in Gozamen woreda is high. No single factor accounted for the high rates of unintended pregnancy; many socio economic, demographic and family planning factors were associated in this regard. In short, it be concluded that to reduce the unintended pregnancy, family planning and reproductive health services need to provide wide spread information on effective contraceptive use and access.

6.2 Recommendations

On the basis of the major findings with regard to determinants of unintended pregnancy the following recommendations are forwarded.

- ✓ Age at first marriage of women has negative effect on unintended pregnancy. Despite the legal provision of marriage, early marriage is more common in the country .So program should focus on creating awareness about marriage law; disadvantage of early marriage and marriage law should be strictly implemented.
- ✓ The study revealed that majority of the women experienced unintended pregnancy because of non use of contraceptive method. This is important implication for family planning programs in Ethiopia. Programs and policies that improve women's and men's knowledge of, access to and use of contraceptive methods should be established or strengthened, as contraception is the surest way to prevent unintended pregnancy.
- ✓ Although not significant in logistic model, it was found from the bivariate analysis that those who reside in rural area had higher level of unintended pregnancy .So the program should focus on women live in rural areas.

- ✓ One of the reasons for unintended pregnancy was husband disapproval. So the program should emphasize the importance of male involvement in family planning. Particularly in areas with deep-rooted patriarchal culture. So that misconception of husband towards family planning methods should be changed. Improving inter- spousal communication as well as women empowerment to persuade the husband to use FP method and small family norm could be another strategy to influence unintended pregnancy.
- ✓ The study revealed that the higher knowledge of family planning leads to lower level of unintended pregnancy .More information is needed about contraception and its proper use, as well as better access to contraceptive services .So family planning program should aim to raise awareness through IEC program about effective use as well as to reduce the unmet need with particular attention in the study area.
- ✓ Education has negative effect on unintended pregnancy. So, women must be provided with general and specific education since education increases their knowledge to use family planning moreover, to choose the most effective method and use it appropriately.

Further research is needed so that program planners and policy makers in Ethiopia would benefit from knowing the information about the proportion of unintended pregnancy which caused by non use of contraception or contraceptive failure. Furthermore, the conventional ways of measuring intention of pregnancies are probably inadequate and may give under estimate the level of unintended pregnancy. So these measurement need to be refined to be more relevant to different social and cultural setting.

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Part one: Socio-economic and demographic characteristics

No	Questions	coding categories	Skip question
101	How old were you at your last birth day?	...years (in complete years)	
102	At what age did you first got married?	
103	What is your religion?	Orthodox.....1 Muslim.....2 Protestant.....3 Catholic.....4	
104	What is your ethnicity?	Amhara1 Others(specify).....2	
105	Can you read and write?	1. Yes 2. No \longrightarrow	skip to Q. 108
106	Have you attended any formal education?	1. yes 2.No \longrightarrow	skip to Q. 108
107	What is the highest grade of school you completed?	Primary education1 Secondary education.....2 Higher education.....3	
108	What type of occupation are you engaged in?	House wife.....1 Merchant.....2 Daily laborer.....3 Government employee.....4 Others (specify).....5	
109	What type of occupation is your husband engaged in?	Farmer.....1 Merchant.....2 Daily laborer.....3 Government employee.....4 Others (specify).....5	

Part two: knowledge and attitudes towards contraceptive method

No	Questions	coding categories	Skip question																								
201	Have you ever heard of any modern contraceptive methods that women or men can use to avoid pregnancy?	1. yes 2. No \longrightarrow	Skip to Q.203																								
202	Which of the following methods do you know about?	<table border="1"> <thead> <tr> <th>*</th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>1 .pills</td> <td>1</td> <td>2</td> </tr> <tr> <td>2.IUD</td> <td>1</td> <td>2</td> </tr> <tr> <td>3.Injectables</td> <td>1</td> <td>2</td> </tr> <tr> <td>4.Sterilization</td> <td>1</td> <td>2</td> </tr> <tr> <td>5.Diaphram</td> <td>1</td> <td>2</td> </tr> <tr> <td>6.Condom</td> <td>1</td> <td>2</td> </tr> <tr> <td>7.Others</td> <td>1</td> <td>2</td> </tr> </tbody> </table>	*	Yes	No	1 .pills	1	2	2.IUD	1	2	3.Injectables	1	2	4.Sterilization	1	2	5.Diaphram	1	2	6.Condom	1	2	7.Others	1	2	
*	Yes	No																									
1 .pills	1	2																									
2.IUD	1	2																									
3.Injectables	1	2																									
4.Sterilization	1	2																									
5.Diaphram	1	2																									
6.Condom	1	2																									
7.Others	1	2																									
203	From where do you mostly get information on family planning methods?	Husband.....1 Friends.....2 Mass gathering.....3 Health extension worker.....4 School.....5 Mass media (TV, radio).....6 Others.....7																									
204	Do you have working radio or television in your house?	1. yes 2. No \longrightarrow	Skip to Q.206																								
205	If your answer to Q.204 is yes, Have attended family planning programs and announcements in your radio or television?	1.I have attended 2.I haven't attended																									
206	Do you know the place where modern contraceptive could be obtained?	1. yes 2. No \longrightarrow	Skip to Q.408																								

Part four: Reproductive history and pregnancy intention

No	Questions	coding categories	Skip question
401	How old were you when you first become Pregnant?	1. -----years 2. I do not remember	
402	Have you ever had a live birth?	1. Yes 2. No \longrightarrow	Skip to Q.407
403	If your answer for Q 402 is yes, how many children have you ever born alive?		
404	How many of your children are living elsewhere?		
405	How many of your children are living with you?		
406	How many living children do you have now?		
407	Are you pregnant now?	1. Yes 2.No 3.I am not sure	
408	Right before you became pregnant with Your last pregnancy, did you yourself want to have another baby at any time in the future?	1. Yes 2. No 3.not decided	
409	At the time you became pregnant, did you want to become pregnant then, did you want to wait until later, or did you not want to become pregnant at all?	Pregnancy wanted then.....1 Pregnancy wanted later.....2 Pregnancy not wanted at all.....3	

Annex: C

Table C.1 Hosmer and Lemeshow goodness of fit test

Chi-square	df	Sig.
3.824	8	0.873

df: degree of freedom

Source: Computed from survey data

Table C.2 Tolerance and VIF values to check multicollinearity effects in the models

Variables	Collinearity Statistics	
	Tolerance	VIF
Resident	0.960	1.042
Age at first marriage	0.834	1.199
Occupation(husband)	0.868	1.152
Exposure to Media	0.804	1.243
Occupation(wife)	0.842	1.188
Age of respondent	0.812	1.231
Education	0.841	1.190
Husband disapproval	0.820	1.220
Knowledge f contraceptive	0.880	1.137
Contraceptive practice prior to recent pregnancy	0.947	1.056

VIF=Variance-inflation factor

Source: Computed from survey data