DETERMINANTS OF UNINTENDED PREGNANCY AMONG CURRENTLY PREGNANT MARRIED WOMEN IN NEPAL

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Nepal has one of the highest maternal and infant mortality rates in the world. One important factor contributing to high level of maternal and infant mortality is unintended pregnancy. This study aims to determine the factors influencing unintended pregnancy among currently pregnant married women in Nepal. The study has used the data from 2001 Nepal demographic health survey. Only currently pregnant women (N=723) at the time of survey were selected for this study.

Unintended pregnancy is the dependent variable of the study. There are 14 independent and 2 intervening variables in the study. Univariate, bivariate and multivariate analyses were used to analyze the data. Logistic regression was used to assess the net effect of several independent and intervening variables on unintended pregnancy. Unintended pregnancy was also predicted by using some conceptually important significant variables in the logistic model.

The analysis has revealed that several variables such as age of women, ideal number of children, age at first marriage, radio exposure, spousal communication, religion and Family Planning (FP) knowledge were statistically significantly related to unintended pregnancy. The results of the study indicate that knowledge of FP and mass media (radio) exposure are the key indicators that affect pregnancy intentions. Thus, it can be suggested that providing more exposure on radio about FP messages, other information, education and communication (IEC) program, and expansion of FP services for women in Nepal is imperative to bring the changes in the situation of unintended pregnancy. In addition, the findings also showed that women's age at first marriage has significantly negative impact on unintended pregnancy. So programs should also focus on creating awareness about marriage law and this law should be strictly implemented. Furthermore, such a program should focus to make 100 percent intended pregnancy a goal by focusing all these identified issues so that abortion, infant and maternal morbidity and mortality will be decreased and the overall health of the family can be improved with appropriate birth spacing and family size.

KEY WORDS: UNINTENDED PREGNANCY/DETERMINANTS/WOMEN/
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CHAPTER I

INTRODUCTION

1.1 Background

Nepal is a country of great geographical and cultural diversity. It borders India to the east, west, and south, and the Tibet Region of the People's Republic of China to the north. According to the latest census of 2001, Nepal's population was 23,15,1423 with slightly more female (50.05%) than male (49.95%). Among Female population, about half of the women (49%) are in the reproductive age group (15-49 years) (MOPE, 2004). In term of fertility, there is a large gap between wanted fertility rate and actual fertility rate. The wanted fertility rate in Nepal is 2.5 births per women, 1.6 children less than the actual total fertility rate. Unmet need for family planning is high (28%) in the country. Infant mortality rate (64 per 1000 live birth) (Ministry of Health (Nepal), New ERA, and ORC Macro, 2002) and maternal mortality ratio (539 per 100,000 live birth) (MOPE, 2004) are very high in the country. One important factor contributing to high level of maternal and infant mortality is unintended pregnancy.

An unintended pregnancy is a pregnancy that is either mistimed (i.e., they occurred earlier than desired) or unwanted (i.e. they occurred when no children, or no more children were desired) at the time of conception (Jain, 1999; Santelli, et al., 2003). It is a complex issue and not just a problem of individual behavior; it is also a problem of public policy and institutional practices. Around the world, about a half million women die due to pregnancy-related reasons every year, 99% of them are in developing countries (Fortney, 1987).

Women living in every country irrespective of development status have been facing the problem of unintended pregnancy. Over 100 million acts of sexual intercourse take place each day resulting around 1 million conceptions, about 50 percent of which are unplanned and about 25 percent are definitely unwanted

(UNFPA, 1997). The data suggest that approximately 49% of all pregnancies in the United States (Hanshaw, 1998), 46% in Yamagata, Japan (Goto, et al., 2002), 35% in both Iran (Abbasi-shavaji et al., 2004) and Nepal (Ministry of Health (Nepal), New ERA, and ORC Macro, 2002) are unintended. Almost all have been occuring due to non-use of family planning method or contraception failure. About 50% of all unintended pregnancies in the United States are due to contraceptive failure (Forrest, 1994). Therefore, unintended pregnancy is an issue that must not be ignored. Many pregnant women will want or need to end a pregnancy to avoid risks to their lives and health, psychological trauma, and socioeconomic turmoil (Ipas, 2004).

Unintended pregnancy is an important public health concern in both developing and developed countries because of its negative association with social and health outcomes for both mothers and children. It often forces women to tackle difficult issues including abortion (Tamang et al., 1998; Senanayake, 2001), the raising of the child without the necessary financial, physical, and emotional support (Klima, 1998). Unsafe abortions are taking place all over the world, with the exception of countries where abortion is legal, safe and relatively accessible (Ahman & Shah, 2002). Unintended pregnancy is associated with adverse prenatal behavior, such as late recognition of pregnancy, late initiation of prenatal care and smoking (Hellerstedt, et al., 1998), and more likely to use alcohol (Altfeld, et al., 1997) during pregnancy. It is also associated with depression of mother during pregnancy and postpartum, and with low birth weight and neonatal death for babies (Cartwright, 1988). Similarly, mothers with unwanted births suffer from lower levels of happiness and spend less leisure time with their children (Barbar, et al., 1999). On the other hand, it lowers social competence of the child, difficult family relation, child abuse, worse performance at school, and more psychosomatic symptoms (Myhrman, 1988; Willson, et al., 1996).

The level of unintended pregnancy can be used as an indicator of the state 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 overall 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 stones of population and development related program (UNFPA, 1998).

1.2 Problem statement and justification

Unintended pregnancy is a potential hazard for every sexually active woman. It is a worldwide problem that affects women, their families, society and nation. A complex set of social and psychological factor puts women at risk for unintended pregnancy. Abortion is a frequent consequence of unintended pregnancy and, in the developing countries can result in serious long-term negative health effects including infertility and maternal death (Klima, 1998). Globally, abortion mortality constitutes at least 13% of maternal death (Berer, 2002). Unsafe abortions are taking place all over the world. Worldwide estimates indicate that 19 million unsafe abortions (approximately one in 10 pregnancies) take place each year. Among those, almost all take place in the developing world (Ahman & Shah, 2002). According to the world bank, one third of the total disease burden (ill health and premature death) that women face is linked to pregnancy, childbirth and abortion, HIV and other reproductive tract infection (Ashford, 1995).

In Nepal, the prevalence of unintended pregnancy in the five years preceding the survey is high (35%). Among these, more than one in five births (21%) is unwanted and one in seven (14%) is mistimed (Ministry of Health (Nepal), New ERA, and ORC Macro, 2002). Family planning method failure rate is high. A study found that 20% in rural and 16% in urban married women aged 15-49 reported method failure as the reason for their unintended pregnancy (Tamang, et al., 2002). Similarly, one research study estimated that during the first year of vasectomy, 1.7% women would become pregnant (Nazerali, et al., 2003), which leads to the higher unintended pregnancies and abortion. A study conducted at 5 major hospitals showed that abortion related admissions account for 20% to 48% of the total obstetric and gynecological patients (CREHPA, 1999). Despite the ligalization of abortion laws (After March

2002) in the country, lack of awareness about the law and facility centers, many women still seek abortion cladestinely and most often they consult unskilled or unqualified health persons, resulting in high rates of abortion related morbidity and mortality (CREHPA 2002).

Although the socio-economic status of Nepalese people is very low compared to the people of many other countries, women's status compared to men within the country has always been low. Most of women are illiterate (57%) in comparison to men (34%). Marriage, especially for the girls, usually takes place in the early ages. The singulate mean age at marriage (SMAM) for female (19.5 years) is lower by 3 years compare to male (22.9 years) and maternal mortality rate is very high (MOPE, 2004). Although knowledge of family planning methods is almost universal among Nepalese women and men, contraceptive use is very low (39%). So the level of unmet need for family planning is very high. The utilization of maternal health services is quite low. Only less than half of the women (49%) receive antenatal care. Less than one in ten births (9%) took place in a health facility and 79% of mothers who delivered outside the health facility do not receive any postnatal checkup (Ministry of Health (Nepal), New ERA, & ORC Macro, 2002). Similarly, life expectancy at birth is lower for female (58 years) by one year than male (59 years) (PRB, 2004).

Many young people get involved in reproductive behavior without proper knowledge and understanding which leads to not only unintended pregnancy but also reproductive tract infection (RTI), sexually transmitted diseases (STDs) including HIV/AIDS, and higher risk of maternal and infant morbidity and mortality. It is hypothesized that women in the vulnerable group (illiterate, living in the rural area, working on agricultural sector), who have a less autonomy in the family, who are not exposured to mass media lead to low knowledge of FP and low utilization of the health services which in turn lead to higher unintended pregnancy.

The underlying cause of high prevalence of unintended pregnancy needs further investigation and exploration in order to be better understood and appropriately addressed by the reproductive health programs. It is essential to identify for those who are at the risk of unintended pregnancy and to provide the service they require. To develop effective strategies for the prevention of unintended pregnancies, it is necessary to understand the factors affecting unintended pregnancies and its

consequences. 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. Moreover program planners and policy makers can focus in some particular aspects of the program and improve the effectiveness of health services in terms of information on contraceptive methods and access to the services. If unintended pregnancy is reduced, then abortion, maternal morbidity and mortality, infant morbidity and mortality will be decreased, and the overall health of the family can be improved with appropriate birth spacing and family size. Though there are a very few studies about unintended pregnancy in Nepal, this type of research which focuses on currently pregnant married women has not yet been undertaken in the country.

1.3 Research questions

1. What is the proportion and characteristics of currently pregnant married women of reproductive age (15-49 years) who have unintended pregnancy?
2. What factors are related to unintended pregnancy among currently pregnant married women of reproductive age in Nepal?

1.4 Research objectives

The ultimate objective of the study is to enable policy makers and program planners to implement the reproductive health program and health services in term of information on contraception and access to contraceptive services for the women who are most likely to experience this problem.

The specific objectives of the study are:

1. To describe the proportion and characteristics of currently pregnant married women who have unintended pregnancy
2. To investigate the influencing factors such as socioeconomic, socio-cultural, demographic, access to health information/services and knowledge and practice of contraceptive on unintended pregnancy.

CHAPTER II

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1 Introduction

The concept of unintended pregnancy has been essential to demographers in seeking to understand fertility, to public health practitioners in preventing unwanted childbearing and to both groups in promoting a woman's ability to determine whether and when to have children (Santelli, et al., 2003). Unintended pregnancy can result from contraceptive failure, non-use of contraceptive services, and less commonly, rape which create serious health consequences for women, child and family (Klima, 1998).

There is very little published literature that focuses on the determinants of unintended pregnancy in developing countries and particularly in Nepal (Puri, 2005) and there is not a single published literature that focuses on currently pregnant women in Nepal in these issues. However, some research studies have shown the relation between unintended pregnancy and socio-economic, demographic characteristics. Moreover, there is very little known about unintended pregnancy in the social and cultural contexts. This chapter reviews the existing literature from previous studies to provide an understanding of the relationship between unintended pregnancy and other factors such as: socio-economic, socio-cultural, demographic, access to health information and services and knowledge and use of family planning method.

2.2 Theoretical aspects

2.2.1 Social cognitive theory

The earliest contribution to learning theory was from William James in 1890, whose notion of the 'social self' laid the foundation for the modern Social Learning Theory (SLT) tenet of the interaction between personal factors and the environment

(Crosbie-Brunett and Lewis, 1993). The Social Learning Theory (SLT) was officially presented in 1941 with Miller and Dollard's publication of *Social Learning and Imitation*. Their SLT incorporated the principles of learning: reinforcement, punishment, extinction, and imitation of models. According to Miller and Dollard, human behavior was motivated by drives, and one organism's responses could serve as stimuli for other organisms (Woodward, 1982). This theory was broadened with principles of observational learning and vicarious reinforcement in 1963 by Bandura and Walters. Bandura added the concept of self-efficacy in 1977. This theory explains how people acquire and maintain behavioral patterns (Bandura, 1997).

Glanz and others (2002) have mentioned that three factors environment, people and behavior are constantly influencing each other. Behavior is not simply the result of the environment and is not simply the result of the person and behavior. The environment provides models for behavior. Observational learning occurs when a person watches the actions of another person and the reinforcements that the person receives (Bandura, 1997).

This theory has suggested that behavior is depended on environment and personal characteristics. Environment refers to the factors that can affect a person's behavior. Environment can be divided into two categories: social and physical. Social environment includes family members, friends and colleagues. Physical environment is the size of a room, the ambient temperature or the availability of certain foods. In this research, it is hypothesized that the personal characteristics such as age, education, occupation and environmental characteristics such as spouse, autonomy, and religion affect their contraceptive using behavior which affect unintended pregnancy.

2.2.2 Health belief model

The Health belief model (HBM) is a psychological model that attempts to explain and predict health behaviors. This is done by focusing on the attitudes and beliefs of individuals. The HBM was first developed in the 1950s by social psychologists Hochbaum, Rosenstock and Kegels working in the U.S. Public Health Services. This theory is also used to explore the health seeking behavior of women related to maternal health (Castro, et al., 2000).

The HBM has four constructs representing the perceived threat and net benefits: perceived *susceptibility,* perceived *severity,* perceived *benefits,* and perceived *barriers.* These concepts were proposed as accounting for people's "readiness to act". Rosenstock and others in 1988 have added two more concepts: cues to action and self efficacy. *Cues to action,* would activate that readiness and stimulate overt behavior and self efficacy helps the HBM better fit the challenges of changing habitual unhealthy behaviors.

The HBM is based on the understanding that a person will take a health-related action (i.e. use of FP) if that person feels that a negative health condition (i.e. Unintended pregnancy) can be avoided. And has a positive expectation that by taking a recommended action, he/she will avoid a negative health condition (i.e. using FP will be effective at preventing Unintended pregnancy) and believes that he/she can successfully take a recommended health action (i.e. he/she can use FP comfortably and with confidence).

2.2.3 Theory of planned behavior/ reasoned action

The theory of reasoned action (TRA) is developed by Ajzen and Fishbein in 1980. Ajzen and Fishbein formulated this theory after trying to estimate the discrepancy between attitude and behavior. This theory was related to voluntary behavior. Later on behavior appeared not to be 100% voluntary and under control, this resulted in the addition of perceived behavioral control. With this addition the theory was called the theory of planned behavior (TPB). The theory of planned behavior is a theory which predicts deliberate behavior, because behavior can be deliberative and planned (Ajzan & Fishbein, 1980).

Theory of Reasoned Action suggests that a person’s behavior is determined by his/her intention to perform the behavior and that this intention is, in turn, a function of his/her attitude towards the behavior and his/her subjective norm. The best predictor of behavior is intention. Intention is the cognitive representation of a person’s readiness to perform a given behavior, and it is considered to be the immediate antecedent of behavior. This intention is determined by three things: their attitude towards the specific behavior, their subjective norms and their perceived

behavioral control (Ajzan & Fishbein, 1980). For example, people's intention, perception, social pressure and belief are the factors affecting the contraceptive use. It is also associated with availability and accessibility of FP information and services that can change knowledge, attitude and behavior of the people.

2.3 Empirical aspects

2.3.1 Socioeconomic characteristics

2.3.1.1 Education level

Education assists in achieving the planned number of births, as women are more likely to know where family planning services can be obtained and more likely to be able to understand and follow instructions for the correct use of contraceptive methods. It reduces the chances of discontinuation or failure of contraception (Mason, 1996, Jejeebhoy, 1995). 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 (Martin, 1995). It is found that not only more educated women want and have fewer children, but they also face fewer obstacles in accessing well services (Alan Guttmacher Institute, 1996). Therefore, educated women are much more likely to have planned pregnancies (Bongaarts, 1997). Women with no formal education or who had not completed primary school were more likely to have had an unwanted pregnancy than women with a primary schooling (Eggleston, 1999).

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). Similarly, in Japan, there was no significant association between the experience of unintended pregnancy and women's education (Goto, et al., 2002). One possible explanation is that better educated women have a stronger motivation than other women to space their children or to delay the onset of a first birth.

2.3.1.2 Occupation

Occupation expresses the socioeconomic 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 both employed and unemployed women. That leads not just to an increased knowledge about the availability and accessibility of health services but also increased confidence in seeking and interacting with service provider (Basu, 1990). It is assumed that people involved in agricultural work want more children compared to the people involved in other occupation (Amin, et al., 1993). Studies mentioned that employed women had higher probabilities of correct contraceptive use than those who were unemployed. So these employed women are less likely to experience unintended pregnancy.

In contrast, a Nigerian study showed that women working in the formal sector were significantly more likely to report having experienced unwanted pregnancy and induced abortion compared to those who were unemployed or working outside the formal sectors (Okonofua, et al., 1999).

2.3.1.3 Places of residence

Regional variation exists in regard to fertility intention because of different socio-cultural pattern and practices (Knodel, et al., 1996). 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 having unintended pregnancy was 32% in rural area compared to only 13% in the capital city (Mensch, et al., 1997).

However, there are some contradictions findings in the study conducted in Ecuador. It showed that residence in rural and non metropolitan urban areas independently lowered the likelihood of both unwanted and mistimed pregnancy compared to two largest cities of the country (Eggleston, 1999). The possible reason may be due to heavy migration from rural to urban areas that might have overburdened family planning services in urban area. In addition, rural women's ideal family sizes tend to shift downward when they move to large cities, where living space is more limited and the cost of living is higher. Another reason could be the stronger

motivation for smaller family norm of educated and employed women who are residing in urban areas

2.3.2 Socio-cultural factors

2.3.2.1 Spousal communication

Inter-spousal communication is an effective means which enables couple to know each others ideas and attitudes in all areas including the desire about when and how many number of children they want or contraceptive method choice. It can play a vital role in the process of decision making in regard contraceptive practices. therefore several studies have shown the relation between spousal discussion and the contraceptive use, which affect intention of pregnancy.

Many empirical researches have shown that women's perception that their husbands oppose family planning is a dominant factor for discouraging contraceptive practice in a wide variety of settings including Philippines (Casterline, et al., 1997) and Nepal (Stash 1999). Research in sub Saharan Africa suggests that communication between spouses is necessary in order for them to initiate discussion of an intimate topic, for them to reach agreement on desired family size and for achievement of their reproductive goals (Ezeh 1993; Gage 1995). However, in the Pakistan, no association was found between contraceptive practice and women's discussions with their husbands. Instead, mother in law has a strong influence with family planning decision (Farial, 2001).

2.3.2.2 Religion

Some studies have found that the relationship between religious affiliation and reproductive health behavior. Phillips and other (1989) showed in Bangladesh that Hindus are more likely to use sterilization than Muslim. The study in Greater Freetown, Sierra Leone has found the higher contraceptive prevalence rate among women affiliated with Catholics or another Christian religion than among those affiliated Islam (Amin, et al., 1992). Restriction about women activities also plays great role on contraceptive use and fertility planning. Islam restricts women's activities in ways that other religions do not (Caldwell, 1986). In contrast, Bhende and

other (1991) in India showed that low contraceptive practice among Hindu than Muslim. The other study found that all non-catholic religious groups had slightly higher rates of contraceptive prevalence compared with Catholics in Kinshasa, Zaire (Shapiro, et al., 1994).

Every religion has their own norm, value and belief about contraception and reproductive health issues including contraception. It can be concluded that religion may have influence on methods selection which has more or less affect on unintended pregnancy but it is difficult to generalize as a common phenomenon.

2.3.2.3 Women's autonomy

Caldwell and Caldwell (1993) defined women's autonomy as "a woman's control over resources, and her ability to make decisions on her own and to act upon these decisions". Unintended pregnancy is a symbol of the pervasive inequities in women's rights and status throughout the world (Klima, 1998). 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 & Taj, 1987).

Women's involvement in domestic decision-making is recognized as affecting their reproductive desires and preferences (Mason 1996). The demographic literature suggests that women's active participation in domestic decision making indicates their power within the household and thus increases their adoption of contraceptives and reduces desired fertility (Balk 1994; Mason, 1996). The study by Kritz and Gurak (1991) showed that women who controlled a greater amount of household expenditure were significantly less likely than others to desire more children. Similarly, the other study showed that living in a municipality with high rates of male patriarchal control significantly increased women's odds of having an unintended pregnancy by almost four times (Pallitto & Campoo, 2005).

2.3.3 Demographic characteristics

2.3.3.1 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 higher the age of women, it is more likely that they report their pregnancy as unwanted (Okonofua et al., 1999). In Nepal, unwanted births generally increase with mothers' age; rising from a low of 1 percent among mothers below 20 years of age to a high of 71 percent among mothers aged 40-44 (Ministry of Health (Nepal), New ERA, & ORC Macro, 2002).

On the other hand, in Japan, age of women was not significantly associated with pregnancy intention (Goto, et al., 2002). One possible reason could be the mothers who are too young may not yet be ready to bear the child and the mothers who are too old may not want more additional child.

2.3.3.2 Ideal family size (ideal number of children)

In societies where large families are desired, the potential unintended pregnancy rate tends to be low. If the desired number of children declines, the numbers of years during which women are potentially at risk of experiencing an unintended pregnancy increases.

A study of 18 countries conducted by Bankole and Singh (1998) showed that husbands tend to want a larger family than their wives in many Sub-Saharan countries. Ideal family size varies in different societies and context. Shah and other (1998), in Kuwait suggest that the ideal number of children is one of the most important predictor in determining women's desire to stop childbearing that affects women in accepting contraceptives and fertility planning.

2.3.3.3 Parity

High parity and unintended pregnancy were clearly linked. The more children a woman already had, the more likely she was to report that her current/last pregnancy was unintended. For example, in Nepal, unwanted birth is increased as birth order is increased (0.1% in the first birth order to 51% in the fourth and above birth order) (Ministry of Health (Nepal), New ERA, & ORC Macro, 2002). Similar findings have been observed in Iran. The proportion of unintended pregnancy has increased as increase the order of pregnancy (13.5% for first order of pregnancy to 58% for forth and higher order of pregnancy) (Abbasi-Shavazi, et al., 2004).

Similarly, the study conducted in Harare showed that women at parity five presented more often with an unplanned pregnancy compare to other parity (Mbizbo, et al., 1997). Mothers of unintended pregnancies had significantly higher parity compared to the mothers of intended pregnancies (Denton, et al., 1994). Study in Ecuador showed that women with unwanted pregnancies had had an average of 3.7 previous births; while women planned pregnancies had had 1.7 previous births (Eggleston, 1999).

2.3.3.4 Age at first marriage

On an 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 childbearing and higher fertility in the society (MOPE, 2004) which increased unintended pregnancy (Goto, et al., 2002). In a study of Kuwait, women who had married before they were 18 years of old wanted about one child more than women who had married at age 21 or older (Shah, et al., 1998).

Similarly, study conducted in Shanghai, China showed that strong relationship between the desired timing of the first birth and wife's age at marriage. For example, 23% of wives who married before age 24 wished to postpone conception for more than one year, compared with 2% of wives who married at age 30 or older (Che & Cleland, 2004).

2.3.4 Access to health information /services

2.3.4.1 Radio/ TV

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 & Maibach, 1990). Media exposure gives wider range of knowledge and sensitizes couples about the family norms so that they have low parity.

The Study in Ilorin, Nigeria, noted that the mass media such as radio, television and newspaper were the greatest single role in providing knowledge on family planning to women and increasing current use of contraception (Oni & McCarthy, 1990). Jato and other (1999) also reported that the more types of media those women were exposed to, the more likely they were likely to practice contraception. Hence it can be concluded that media exposure leads women to adopt contraceptive methods (Westoff & Rodriguez, 1995; Odimegwu 1999) which can reduce unintended pregnancy.

2.3.4.2 FP workers' visit

Many studies showed that family planning workers' visit increase the use of modern contraceptive because family planning outreach workers in the community provide information on family matter as well as some services on family planning methods. Phillips and other (1998) in Bangladesh found that women who have been visited by a family planning outreach workers are more likely to use modern contraceptive methods. Similarly, Pariani and others (1991) in Java, Indonesia concluded that contraceptive continuation can be enhanced when family planning workers pay more attention to the desires of their clients.

Hence, it can be said that FP workers' visit can increase the use and continuation of modern FP methods. The failure rates of modern contraceptives are very low compare to traditional/natural method. So the chances of experiencing of unintended pregnancy are very low for those areas.

2.3.4.3 Travel time/distance to FP services

Access to quality family planning information and service are important factors for healthy pregnancies as well as preventing unintended pregnancies. A multivariate analysis based on contraceptive prevalence survey in Nepal concluded that increasing availability and accessibility of the services could increase the sustained utilization of contraceptive use. The study also found inverse relationship between distance of health facility and contraceptive use (Tuladhar, 1987). Similarly, the study conducted in Vietnam by Thang and Anh (2002) found that women living within one kilometer of contraceptive services were almost three times as likely to be current users of a modern contraceptive method as those who were residing more than one kilometer.

Likewise, Acharya and Cleland (2000) found that utilization of maternal services is higher in the community where health posts are located compare to the communities that are far from the health post. One indicator for availability of health services is travel time. If the travel time is less, people feel more comfortable to visit the health facility leading to increase the utilization of services and decrease the unintended pregnancy.

2.3.5 Knowledge and practice of family planning

2.3.5.1 Knowledge about FP methods

Unintended pregnancy is related with knowledge of family planning and other reproductive health issues. Unless a woman knows about the different family planning methods that are available, it is unlikely that she will practice family planning. So knowledge about contraception is necessary to use effective methods of contraception and to prevent unintended pregnancy; however, the link between knowledge and behavior is not automatic (Deschner & Cohen, 2003). It is observed that women with planned pregnancies knew of slightly more modern methods than did women with unwanted pregnancies (mean 4.5 vs. 4.1) (Eggleston, 1999). The study in Ankola, Uganda showed that the women who had the knowledge of contraception

were using more modern methods compare to those having no knowledge (Ntozi & Kabera, 1991).

On the other hand, women who had knowledge of modern family planning methods were two times more likely than those without such knowledge to report that they had had an unwanted pregnancy (Okonofua, et al., 1999). However, the study by Regmi (1980) noted that the higher knowledge did not necessarily lead to higher level of contraceptive use. As knowledge was a pre-requisite to contraceptive use.

2.3.5.2 Use of family planning method

The individual or community perception about contraception is important factor which affects contraceptive use and unintended pregnancy. The majority of the women in many countries including United States believe that having a baby is less risky than, or equally risky as, taking the pill. Some women believe that pill are dangerous drugs and may cause or increase the risk of breast cancer and thrombosis (Senanayake, 2001). Such misconception leads to discontinue and decrease the use of contraception and increase the level of unintended pregnancies.

One Operation Research study conducted in Nepal clearly demonstrated that Reproductive Health (RH) related knowledge and practice including FP use are remarkably high in the program area after the program implementation compare to control area (Tamang, et al., 2004). The similar finding has been observed in Bangladesh also. Access to contraceptive increased the use of contraceptive and reduced unintended pregnancy both in areas served by MCH-FP clinics and in comparison areas, but rates dropped more sharply where higher-quality MCH-FP services were available (Deschner & Cohen, 2003).

However, the study conducted in Ecuador showed that both unwanted and mistimed pregnancy were more common among women who had used a modern method of family planning (25% and 20% respectively) than those who had not used a method before their most recent pregnancy (18% and 17% respectively) (Eggleston, 1999).

2.4 Conceptual framework

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 though intervening variables on dependent variables. The framework consists four domains of independent variables and one domain of intervening variables. Independent variables are socio-economic characteristics, socio-cultural factors, demographic characteristic and access to health information/services. Similarly the domain of intervening variables are knowledge and practice of family planning (FP) methods.

Socio-economic domain includes women's education, women's occupation and place of residence. Socio-cultural factor comprises of spousal communication, religion and women's autonomy. Here women's autonomy was measured by two variables: one was decision taken for own health care and another was decision taken on how to spend their own earned money. Age of women, ideal number of children, parity and age at first marriage are comprised as demographic characteristics. Access to health information/services comprises of mass media (listen to the radio, watching television), FP field workers' visit and distance to (travel time) nearest FP sources. Similarly, knowledge and ever practice of FP services comprise as knowledge and ever use of family planning methods.

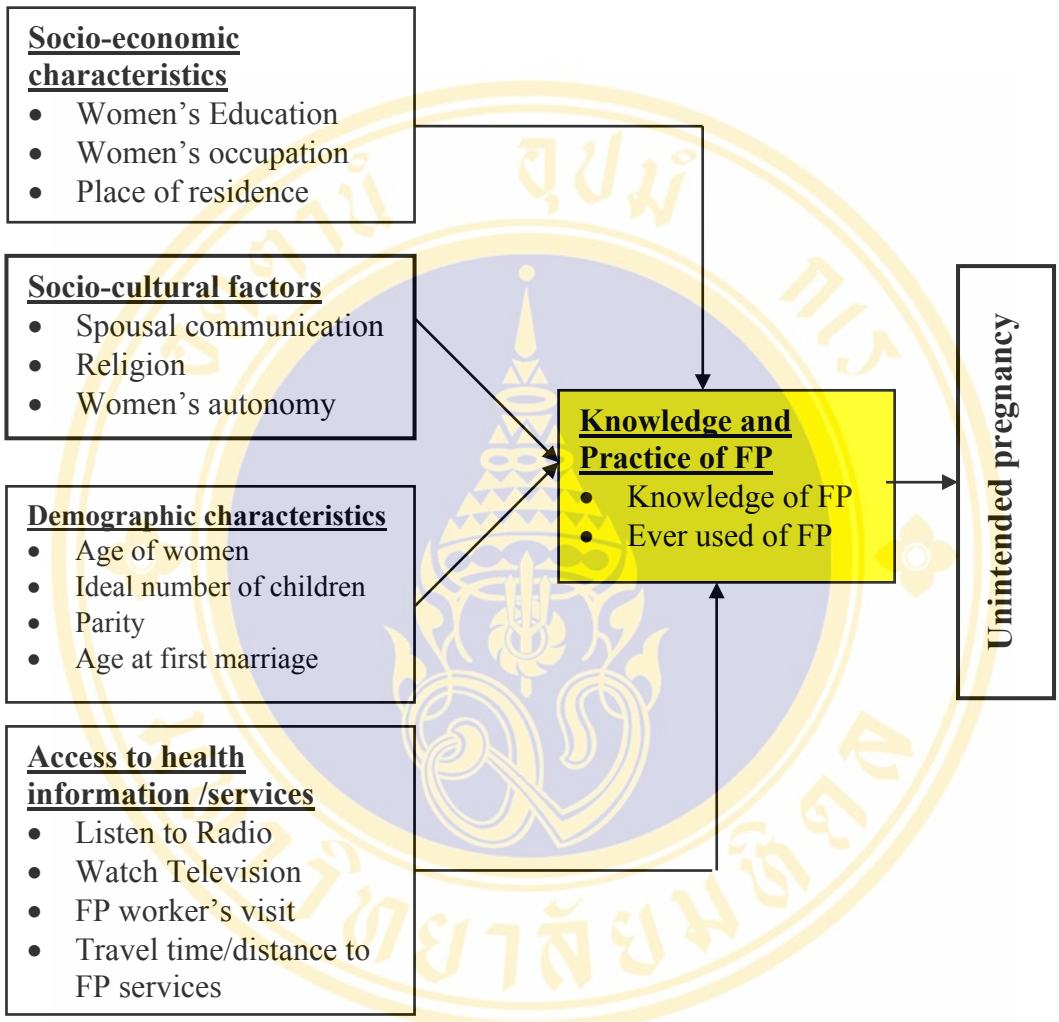

Figure 2.1 Conceptual framework

2.5 Hypotheses

1. Socio-economic vulnerability (Illiterate, working on agriculture, rural residence) leads to low knowledge and use of FP and higher unintended pregnancy
2. Women who discussed about reproductive health issues with their husband are more likely to use contraceptive and less likely to have unintended pregnancy
3. Women who have autonomy on own health care, spending own earned money are more likely to utilize FP services and less likely to have unintended pregnancy
4. Woman who are older, who have more children, who have got married in the earlier ages, have lower knowledge about contraception and less likely to use FP and more likely to have unintended pregnancy compared to other
5. Exposure to mass media (Radio/TV) lead to higher utilization of the services and lower level of unintended pregnancy
6. Poor access to health service delivery (more travel time/distance) leads to low utilization of services, which in turn leads to higher unintended pregnancy

CHAPTER III

RESEARCH METHODOLOGY

3.1 Source of data and sample design

The study has used secondary data from the 2001 Nepal Demographic and Health Survey (NDHS, 2001). This survey was conducted under the auspices of Family Health Division, Department of Health Services, and the Ministry of Health Nepal. The survey was implemented by New ERA, a local research organization with technical support from ORC Macro assistance through its MEASURE DHS+ program.

The primary purpose of the survey was to generate recent and reliable information on fertility, family planning, infant and child mortality, maternal and child health and nutrition and knowledge about HIV/AIDS. The sample was designed to provide estimates of most key variables for the 13 domains obtained by cross classifying the three ecological zones [mountain, hills, and terai (plain area)] with the five development regions (Eastern, Central, Western, Mid-western, and Far-western).

The sample for the NDHS, 2001 was based on a two-stage, stratified sampling which was nationally representative households sample. Wards (the smallest administrative units of Village Development Committee) in the rural area and sub-ward in the urban area (municipality or metropolitan) were primary sampling units (PSU) for the NDHS. At the first stage of sampling, 257 PSU (42 in urban and 215 in rural) were selected by using systematic sampling with probability proportional to size and at the second stage of sampling, systematically sample of 34 households per PSUs on average were selected in all the regions.

This survey successfully interviewed 8,602 households. From the households 8,726 ever-married women in the reproductive age 15-49 years and 2,261 ever-married men were interviewed.

3.2 Unit of analysis

This study aims to deal with the currently pregnant women at the time of interview. Out of 8,726 interviewed women, 751 (8.6%) were currently pregnant women at the time of survey. Among these women, 28 respondents were excluded from the analysis due to missing data on intention status for current pregnancy. So the total study population of this study is 723.

Only currently pregnant women were selected for this study to minimize underreporting unplanned pregnancies. It may reduce recall error because it is related to current situation and not pregnancy history. If we take children birth in the preceding five years or life time, that information may in fact underestimate unplanned childbearing since women may rationalize unplanned births and declare them as planned once they occur. This study represents the country as a whole because the sample population is drawn from the national representative survey.

3.3 Operational definition

The dependent variable for the study is unintended pregnancy. The independent variables are socio-economic, cultural, demographic, access to health information and services. The intervening variables are knowledge and ever use of FP method. The following are the operational definitions of each variable.

3.3.1 Dependent variable

Unintended pregnancy

Pregnancy planning is measured by respondents' perceived desire of current pregnancy at the time of survey. The question was "*At any time you became pregnant, did you want to become pregnant then, did you want to wait until later, or did you not want to have any (more) children at all?*"

There were three options to allow the response. These options were: *wanted then (planned), wanted to wait later (mistimed) and did not want at all (unwanted)*. Those respondents who mentioned that their current pregnancy was either mistimed or unwanted were merged and considered as unintended pregnancy and else (planned)

was treated as intended pregnancy. Thus, this variable is categorized into two categories: unintended and intended.

3.3.2 Independent variables

Socio-economic characteristics

Under the socio-economic heading, three variables such as women's literacy status, place of residence and women's occupation are considered.

Women's Literacy status

This variable measures the literacy status of a woman. It is categorized into 2 categories; illiterate and literate. The purpose is to analyze the effect of literacy status on the unintended pregnancy.

Women's occupation

Woman's occupation variable measures that the woman is employed in any sector for at least three months continuously in a year. Their occupation has been categorized into two broad groups: working in agriculture/not working, and working in non-agricultural sectors.

Place of residence

Women who live in the municipal area are defined as urban women and those who live in rural area are defined as the rural women.

Socio-cultural factors

Spousal communication

The variable measures respondents' discussion with their husband regarding family planning matters. For the analysis, this variable is grouped into two categories: discussed and not discussed.

Religion

The variable religion measures respondents' religion affiliation. Those respondents who are affiliated in Hindu religion are considered as Hindu and the rest are considered as Non-Hindu.

Women's autonomy

Women's autonomy is a complex phenomenon that cannot be completely measured by determining if women have the final say in decisions or not. In this study, women's autonomy was measured by two different variables separately. Variables were '*decision on own health care seeking behavior*' and '*decision on how to spend money'* respectively.

Women who had some autonomy about decision related to their own health care or how to spend their own earned money were coded autonomy and given 1 and women who depended totally for other decision related these issues were considered as no autonomy and coded 0.

Demographic characteristics

Age of women

The variable refers the respondents' completed age at the time of survey. This variable is categorized into 3 categories for bivariate analysis: 15-24 years, 25-34 years and 35 years or more and is treated as interval scale in multivariate analysis.

Ideal number of children

The variable refers the respondents' perception about their ideal number of children. This variable is categorized into two categories (one- two children, and three & more children) for bivariate analysis and interval scale for multivariate (logistic) analysis.

Parity

This variable refers to the number of births given by respondents. This variable is categorized into four categories (none, one, two and three & more).

Age at first marriage

Age at first marriage refers to the age of respondents when she got married. This variable is categorized into two categories; one is less than 16 years and another is 16 or above years and used in interval scale in multivariate analysis.

Access to health information and services

Radio exposure

Radio is considered as access to health information in this study. Respondents were asked question, "*Do you listen to radio every day?"* Positive answer such as listen to the radio is taken 'yes' which means exposure to the radio and the negative answer 'no' means no exposure to the radio.

Television exposure

Like Radio, Television is considered as access to health information in this study. Respondents were asked "*Do you watch T.V. at least once a week?"* The response is categorized into two categories: 'Yes' that means exposure to TV and 'No' means no exposure to TV.

FP worker's visit

The respondents were asked whether the family planning workers have visited respondents or not during the 12 months' period. This variable has two responses; visited and not visited.

Travel time to health facility

This variable refers the travel time needed to visit the nearest FP facility from respondents' residence. The response is categorized into four categories; less than 30 minutes, 30-60 minutes, more than one hour and no response/don't know.

3.3.3 Intervening variables

Two variables are used as intervening variables. It is hypothesized that the independent variables affect dependent variable (unintended pregnancy) through intervening variables.

Knowledge and practice of FP

Knowledge about FP

Almost all respondents (99.5%) have heard at least one FP method. So knowledge about FP variable is measured by scoring the knowledge of each method. This variable is categorized into two categories. The average number of methods heard was taken as a guide for making these two categories. Score over than average (average score =7.1) treated higher and less than average treated as lower level of knowledge.

Ever used of FP

The variable refers to the ever used of family planning method before this current pregnancy. This variable is in dichotomous and coded '1' for those who had ever used contraception and coded 0 for those who have never used of any contraceptive before.

Table 3.1 Operational definitions of variables and their measurements

Variables		Description	Measurement scale
Dependent Variable	Unintended pregnancy	Type (Intended ness) of current pregnancy	**Dichotomous** 0=Intended 1=Unintended
Independent Variables ***Socioeconomic***	Women's literacy status	Literacy status of women	***Ordinal*** 0= No education/illiterate 1= Literate
	Women's Occupation	Types of women's work	***Nominal*** 0= Not working/Agriculture 1=Non-agriculture
	Place of Residence	Types of place of residence of the respondent	***Dichotomous*** 0= Urban 1= Rural
Socio-cultural	Spousal communicati on	Discussion with husband about family planning	***Dichotomous*** 0= Not discussed 1= Discussed
	Religion	Women's religion	***Dichotomous*** 0=Non-Hindu 1= Hindu
	Woman's Autonomy	Autonomy on own health care and how to spend own earned money	***Nominal*** 0= No autonomy 1= some autonomy
Demographic	Age of women	Respondent's completed age at the time of survey	***Ordinal for bivariate analysis*** 0=15-24 years 1=25-34 years 2=35-49 years Interval scale for multivariate
	Ideal number of children	Women's concept or preferences about the number of children	***Ordinal for bivariate analysis*** 1= One-two 2= Three and more Interval scale for multivariate
	Parity	Number of children given by the respondents	***Ordinal for bivariate analysis*** 0= None 1=One 2=Two 3=Three and more Interval scale for multivariate
	Age at first marriage	Respondents' completed age at the time of marriage	***Ordinal for bivariate analysis*** 0= Less than 16 years 1= 16 years and more Interval scale for multivariate

Table 3.1 Operational definitions of variables and their measurements (contd..)

Variables		Description	Measurement scale
Access to health information/ services	Radio exposure	Listen to Radio every day	***Dichotomous*** 0=No 1=Yes
	TV exposure	Watch Television at least once a week	***Dichotomous*** 0=No 1=Yes
	FP field worker's visit	Women who are visited by FP program worker in the last 12 months	***Dichotomous*** 0=Not visited 1=Visited
	Travel time to the nearest FP sources	Travel time needed to reach the nearest FP sources from her residence	***Ordinal*** 0 = less than 30 minutes 1= 30-60 minutes 2= More than 1 hour 3= No response/don't know
Intervening variables	Knowledge about FP methods	Knowledge Score of different family Planning method	***Ordinal*** 0= Lower knowledge 1= Higher knowledge
	Ever Use of FP	Respondents who had ever used of any contraceptive or not in the past	***Dichotomous*** 0= Never used of FP 1= Ever used of FP

3.4 Method of analysis

Statistical Package for Social Science (SPSS 12 for window) software was used to analyze the data. Analyses were done through univarite, bivariate and multivariate analyses. Univariate and bivariate analyses were done unintended pregnancy by socio-economic, socio-cultural, demographic, access to health information/ service. Before the multivariate analysis, multicollinearity between the variables was assessed and the least important variable was removed from the logistic model. Since the dependent variable of this study is dichotomous, binary (binomial) logistic regression was chosen to further analyze the data to assess the effect of the independent variables and intervening variables on the unintended pregnancy. Unintended pregnancy was also predicted by using some conceptually important significant variables in the logistic model.

3.5 Limitation of the study

This study has used the data source: the Nepal Demographic Health Survey (NDHS, 2001), which has had its own objectives different from this current research. The analyses were confined to the data available in the sources undertaken. DHS has used the conventional definition of unintended pregnancy which is based on only one question, so the findings of this study may not adequate to capture some important criteria of an unintended pregnancy such as method failure, the pregnancy was due to pressure of husband or other family members, the partners were not determined to have a child before pregnancy etc. However, there may be some other factors that may influence pregnancy intention. The findings of the study may not provide the whole determinants of the unintended pregnancies.

CHAPTER IV

RESULTS

This chapter describes the results of data analysis by using univariate, bivariate and multivariate methods. In the univariate analysis, background characteristics of the study population were described. Association between independent and intervening variables on dependent variable was described in the bivariate analysis by using cross tabulation and chi-square test. In the multivariate analysis, binary logistic regression was done to estimate the net effects of each of the conceptually important variables on the likelihood of a pregnancy to be unintended.

4.1 Univariate analysis

4.1.1 Socio-economic characteristics

Among the surveyed married women of the reproductive age, less than one in ten respondents (8.6%) was currently pregnant at the time of the survey (Figure 4.1).

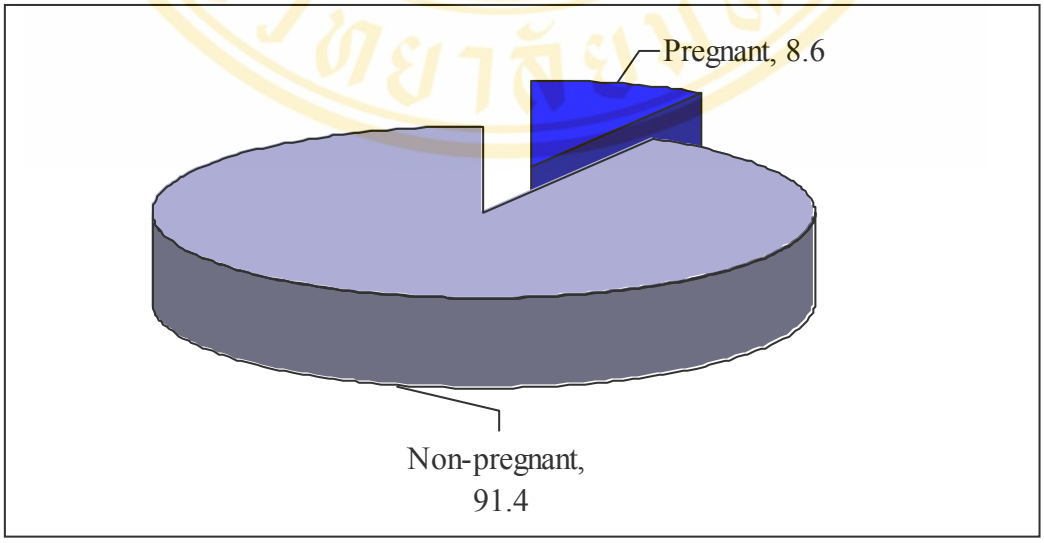

Figure 4.1 Percentage of respondents according to the current pregnancy status

Figure 4.2 shows the percentage distribution of the sample population by socio-economic characteristics. About two-thirds of the women (67%) were illiterate, revealing the country's situation with a low literacy rate.

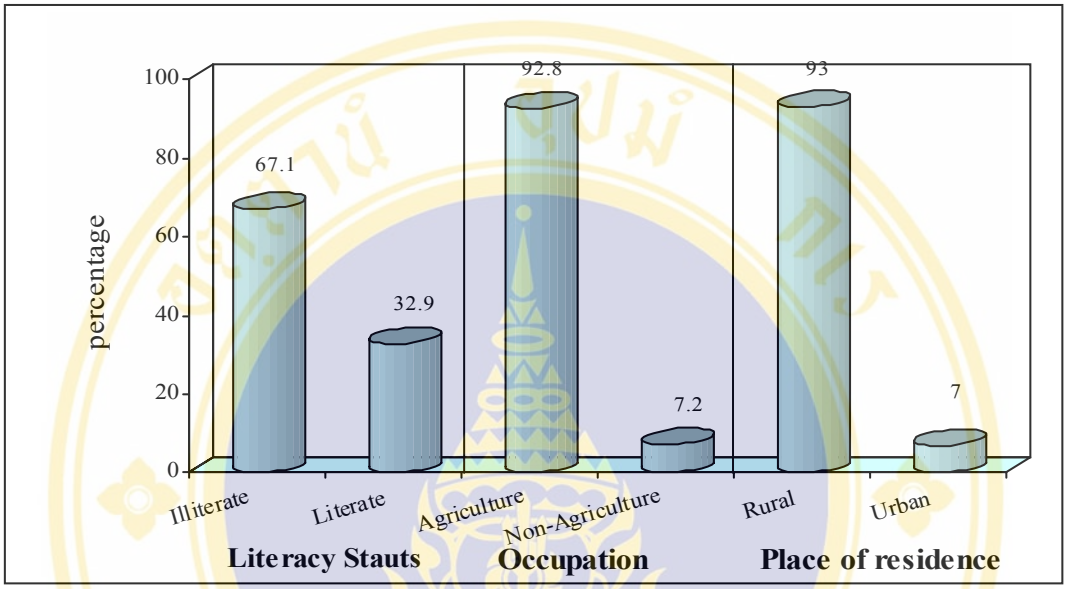

Figure 4.2 Distribution of the respondents by socio-economic factors

Regarding the occupation, only very small percentage of respondents (7%) reported that they were working in non-agricultural sectors. Other 93 percent were not working or working in agricultural sector because large proportion of the respondents (93%) was residing in the rural areas.

4.1.2 Socio-cultural characteristics

Figure 4.3 presents the distribution of the currently pregnant respondents by socio-cultural factors. Concerning the spousal communication, slightly more than two-fifths (42%) of the respondents had discussed about family planning with their husbands. A majority of the respondents (85%) was affiliated to the Hindu religion while Non-Hindu comprised only a little share (15%) of the total sample. Regarding the women's autonomy, small proportion of women (21 %) had somewhat autonomy on their own health care and how to spend own earned money while a higher proportion of the respondents (79%) depended on others' (husband, mother/father in

law, other family members) decision (no autonomy) which indicates a very low level of women's autonomy in the country.

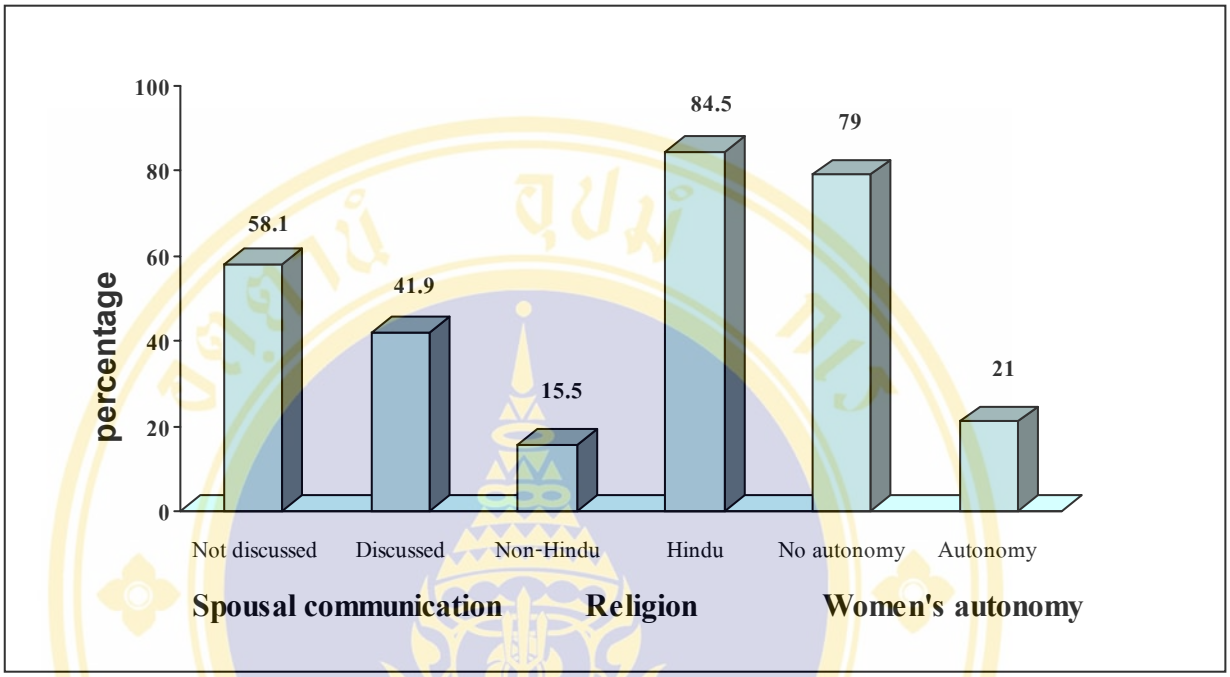

Figure 4.3 Distribution of the respondents by socio-cultural factors

4.1.3 Demographic characteristics

In this study, although the age of the currently pregnant women ranged from 15 to 45 years, median age of the respondents was 23 years that indicated the majority of the respondents was youth (<25 years). Less than one out of ten (9%) respondents was comprised in the age group 35 and above. While looking at the ideal number of children, more than half of the respondents (56%) reported that their ideal number of children is up to two while less than half of the respondents (43%) had perceived three or more children as their ideal number. Ideal number of children among respondents ranged from one to seven.

Although the mean number of children ever born (CEB) was only 2.0, it is interesting to note that women who had already given birth 12 times (CEB ranges from 0 to 12) were also pregnant at the time of survey. More than one fourth of the respondents did not have any children while nearly one third of the respondents (31%)

had three or more children. Although the marriage act of Nepal does not allow to get marriage before the 16 years (when survey was carried out), nearly half of the currently pregnant respondents (47%) got married before 16 years of age and mean age at marriage was also 16.1 years (Table 4.1).

Table 4.1 Number and percentage distribution of the currently pregnant respondents by demographic characteristics

Demographic characteristics	Number	Percent
Age group (years)		
15-24	415	57.4
25-34	247	34.1
35 or more	61	8.5
Mean age	*24.5 years*	
Median age	*23.0 years*	
Ideal number of children		
1-2 children	404	55.9
Three or more	303	42.0
No numeric responses	15	2.1
Mean ideal number of children	*2.5*	
Children ever born		
None	195	27.0
One	184	25.5
Two	122	16.9
Three or more	222	30.6
Mean CEB	*2.1*	
Age at first marriage (years)		
Less than 16	339	46.9
16 or more	384	53.1
Mean age at marriage	*16.1*	
Median age at marriage	*16.0*	
Total	723	100.0

4.1.4 Access to health information and services

Regarding to the mass media exposure, about one-third of the respondents (35%) listened to the radio every day. The proportion of the respondent who watched TV at least once a week was also very low (19%). More than one third of the respondents (36%) have reported that the distance between nearest family planning services and their houses is more than half an hour while 14 percent were not aware

about any family planning source at all. Very few respondents (8%) reported that the family planning workers visited them in the last 12 months (Table 4.2).

Table 4.2 Number and percentage distribution of the currently pregnant respondents by access to health information/services

Access to health information/services	Number	Percent
Radio exposure		
No	469	64.9
Yes	254	35.1
Television exposure		
No	583	80.7
Yes	140	19.3
Travel time to nearest FP source		
Up to 30 minutes	363	50.1
31-60 minutes	167	23.2
More than one hour	91	12.6
Don't know about source	102	14.1
FP workers' visit		
Not visited	663	91.7
Visited	60	8.3
Total	723	100.0

4.1.5 Knowledge and practice of family planning methods

Knowledge about Family Planning (FP) methods was scaled from a set of questions. For each method, a score of 0 was given when it is not heard and 1 was

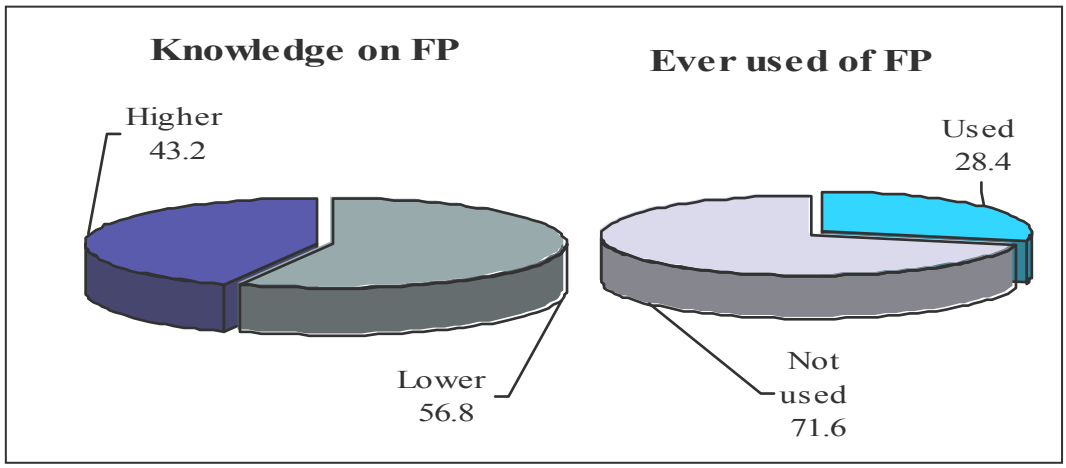

Figure 4.4 Distribution of respondents by knowledge and practice on FP

given when the method was heard. The minimum score was 0 and maximum score was 12 (full score). The average number of FP method heard was 7.1. Here, the respondents who have heard less than average score (<7.1 methods) considered as lower level of knowledge and those who have heard more than average score considered as higher level of knowledge. It should be noted that the scale measures variations in the relative knowledge of respondents not the absolute knowledge. Hence while a score of 7 FP methods out of 12 FP methods may not be low in an absolute sense, but relative to other respondents it is low.

Although approximately half of the respondents (43%) have higher knowledge about contraception, less than one third of respondents (28%) reported that they have ever used at least one family planning method in their life (Figure 4.4).

4.2 Bivariate analysis

4.2.1 Socio-economic determinants

Figure 4.5 shows the intentions of the women about their current pregnancies. About one-fifth of the respondents mentioned that they wanted their current

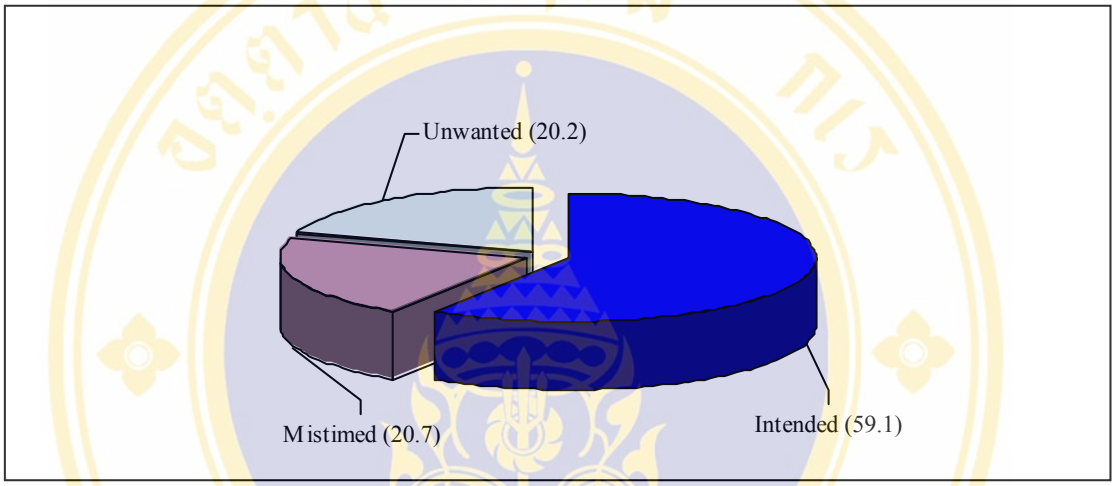

Figure 4.5 Percentage of respondents classified by their pregnancy intention

pregnancies later (mistimed = 21%) and the other one-fifth reported that they did not want at all their current pregnancies (Unwanted=20%). Combining these two categories labeled as unwanted and mistimed, more than two-fifths of the respondents (41%) reported their current pregnancies were unintended (Unintended defined as mistimed and unwanted pregnancy).

When stratifying the women's socio-economic characteristics, it was found that the percentage of women who have experienced current pregnancies as an unintended varied by different backgrounds socio-economic characteristics. In regards to literacy status, more than two-fifths illiterate women (44%) had unintended pregnancies while the proportion of literate women was about one-third (34%). It is interesting to note that higher proportion of literate women had mistimed pregnancies (29%) compared to illiterate women (18%). However, only 5 percent of literate

women didn't want this pregnancy at all while more than 27 percent of illiterate women had unwanted pregnancies (Table 4.3).

Table 4.3 Percentage distribution of the currently pregnant respondents according to their pregnancy intention by socio-economic characteristics

Socio-economic characteristics	*Intended*	Unintended			Grand total (N)	$\chi 2$
		Mistimed	Unwanted	*Total*		
Literacy status						
Illiterate	*55.6*	16.7	27.7	*44.4*	486	7.8**
Literate	*66.0*	29.0	5.0	*34.0*	237	
Occupation						
Not working /agriculture	*58.2*	20.9	20.9	*41.8*	671	2.4
Non agriculture	*69.6*	19.2	11.2	*30.4*	52	
Place of residence						
Rural	*58.3*	20.4	21.3	*41.7*	673	1.79
Urban	*68.3*	25.4	6.3	*31.7*	50	
Total	*59.0*	20.7	20.2	*41.0*	723	

*Note: *p<.05, **p<.01, ***p<.001*
$\chi 2$ test is done only for total of intended and unintended

In term of occupation, more than two-fifths (42%) of the women who had no job or worked in the agriculture had unintended pregnancy while the proportion for non-agricultural sectors employee who had unintended pregnancy was less than one-third (30%). Similarly, women who lived in urban areas had 10 percent less unintended pregnancy (32%) compared to those who lived in rural areas (42%). Expectedly, rural women were more likely to have an unwanted pregnancy (21%) than those who lived in urban area (6%) however mistimed pregnancy was relatively more among urban women (25%) than rural women (20%).

Chi-square test was done to find out the association between independent and dependent variables. Although the proportion of unintended pregnancy varied with all the three socio-economic variables, only literacy variable had significant association ($p< .01$) with pregnancy intention. That means women who were literate were significantly less unintended pregnancy compared to illiterate women. However, no significant difference was observed in the level of unintended pregnancy according to occupation and place of residence.

4.2.2 Socio-cultural determinants

Table 4.4 shows the socio-cultural determinants of unintended pregnancy. Different level of unintended pregnancy was observed among women in different cultural setting. Not as expected, women who discussed about family planning method with their husbands had more unintended pregnancy (47%) compared to those who didn't discuss with their husbands (37%). In terms of religion, more than half of the non-Hindu women (52%) had reported that their current pregnancies were unintended while there was only 39% for Hindu women. One of the reasons could be due to the religious belief of the Hindu woman to accept it as a gift given by the god.

Against expectation, those women who had autonomy on their own health care and how to spend own earned money had more unintended pregnancy (50%) than those who depended to other (39%). It is possible that women who earn cash were associated with households of low economic status and the job itself was low status jobs.

Table 4.4 Percentage distribution of the currently pregnant respondents according to their pregnancy intention by socio-cultural factors

Socio-cultural factors	*Intended*	Unintended			Grand total (N)	$\chi 2$
		Mistimed	Unwanted	*Total*		
Spousal communication						
Not discussed	*63.4*	20.7	15.9	*36.6*	421	7.78**
Discussed	*52.9*	20.8	26.3	*47.1*	302	
Religion						
Non-Hindu	*47.8*	20.2	32.0	*52.2*	112	7.03**
Hindu	*61.1*	20.8	18.1	*38.9*	611	
Women's autonomy						
No autonomy	*61.3*	20.2	18.5	*38.7*	571	
Some autonomy	*50.3*	22.9	26.8	*49.7*	152	5.9*
Total	*59.0*	20.7	20.2	*41.0*	723	

*Note: *p<.05, **p<.01, ***p<.001*
$\chi 2$ *test is done only for total of intended and unintended*

Spousal communication, religion and women's autonomy have significant association with pregnancy intention. As mentioned in descriptive analysis, women who discussed about FP with their husbands and Non-Hindu women had significantly (p<. 01) higher level of unintended pregnancy compare to their counterparts. Similarly, women who had higher level of autonomy about own health care and

spending own earned money also had significantly ($p<.05$) higher level of unintended pregnancy.

4.2.3 Demographic determinants

Table 4.5 presents the demographic determinants of unintended pregnancy. As expected, as age increases the percentage of women reporting unintended pregnancies increased (31 percent of the women aged less than 25 to 77 percent of the women aged 35 and above). Higher percentage of mistimed pregnancies among the youth (27%) indicated that they wanted to postpone their pregnancies. It is also observed the different median age among women who had different pregnancy intention. Median age of the respondents who mentioned current pregnancy is intended, mistimed and unwanted were 22 years, 21 years and 31 years respectively. Against expectation, those women who had three and more ideal number of children have higher level of unintended pregnancy (44%) compared to those who reported fewer children (39%) as an ideal number. Those women might have already completed their ideal number of children. On the other hand, those women who have higher ideal number of children may not use any contraceptive methods and they have exceeded their desired number of children. As expected, women with higher birth order reported higher rate of unintended pregnancy. Generally, mistimed pregnancy was frequently found among the first and the second pregnancies (27-28%), and unwanted pregnancy was common among third and later (54%). Mean number of children ever born also varied largely by respondent's pregnancy intention. Those respondents who had experienced unintended pregnancy had 3 times more (mean CEB= 4.6) children than those who reported current pregnancy as intended (mean CEB=1.3). Women who got married in the early ages (before 16 years) have higher rate of unintended pregnancy compare to those who got married in the age 16 years and later.

Table 4.5 Percentage distribution of the currently pregnant respondents according to their pregnancy intention by demographic characteristics

Demographic characteristics	*Intended*	Unintended		*Total*	Grand total (N)	$\chi 2$
		Mistimed	Unwanted			
Age group						
15-24	*68.7*	27.2	4.1	*31.3*	415	
25-34	*51.6*	14.4	34.0	*48.4*	247	54.36***
35 or more	*23.5*	2.8	73.7	*76.5*	61	
Mean age	***23.1***	**21.8**	**31.4**	***26.6***		
Median age	***22.0***	**21.0**	**31.0**	***25.0***		
Ideal number of children						
1-2 children	*60.8*	24.6	14.6	*39.2*	404	2.00
Three or more	*55.6*	16.6	27.8	*44.4*	303	
Mean ideal number of children	***2.5***	**2.4**	**2.8**	***2.6***		
Total	*58.5*	21.2	20.3	*41.5*	707	
Total children ever born						
None	*79.3*	20.7	-	*20.7*	195	
One	*71.2*	28.1	0.7	*28.8*	184	99.6***
Two	*51.8*	27.1	21.2	*48.2*	122	
Three or more	*35.1*	11.1	53.8	*64.9*	222	
Mean CEB	***1.3***	**1.4**	**4.6**	***3.0***		
Age at first marriage						
Less than 16 years	*53.8*	22.0	24.2	*46.2*	339	7.5**
16 year or more	*63.7*	19.6	16.7	*36.3*	384	
Median age at marriage	***16.0***	**15.8**	**15.0**	***15.0***		
Mean age at marriage	***16.2***	**16.0**	**15.4**	***15.7***		
Total	*59.0*	20.7	20.2	*41.0*	723	

Note: # Those respondents who did not give response in number are excluded
**p<.05, **p<.01, ***p<.001*
$\chi 2$ test is done only for total of intended and unintended

Performing the chi-square test, the result shows very significant association with the age of women (p<.001), total children ever born (p<.001), age at first marriage (p<.05) and unintended pregnancy. This means that the woman with higher age group, higher parity and lower age at first marriage has more chances of reporting

current pregnancy as an unintended. However, there was no significant association between the ideal number of children and unintended pregnancy.

4.2.4 Access to health information/services

Table 4.6 presents effect of access to health information and services on unintended pregnancy. The result shows that the increase in exposure to mass media decreases the level of unintended pregnancy. About one third of the respondents who were exposed to radio and TV reported that their current pregnancies were unintended (33-35%) while the proportion was more than two-fifths (43-45%) for those who were not exposed to any media. Similarly, access to health services decreases the proportion of unintended pregnancy. Those respondents who resided near the family planning sources (less than 30 minutes travel distance) reported much lower (38%) unintended pregnancy compared to those who resided far (more than one hour travel distance) from the FP sources (54%). Against expectation, those respondents who were visited by Family Planning workers in the last 12 months had higher level of unintended pregnancy (54%) compared to those who were not visited by FP workers (40%).

Among the mass media, radio has significant association ($p<.01$) with unintended pregnancy. Similarly there is a significant difference among the different travel distances ($p<.01$) with unintended pregnancy. This means that women who exposed to the radio and who resided near the FP sources have significantly lower unintended pregnancy compare to their counterpart. On the other hand, women who were visited by FP workers have significantly ($p<.05$) higher unintended pregnancy. The possible reason for this is that these women might be motivated about small family's norm after the conception of the current pregnancy or FP workers' visit may not be intended for family planning purposes (Table 4.6).

Table 4.6 Percentage distribution of the currently pregnant respondents according to their pregnancy intention by access to health information/ services

Access to health information/services	*Intended*	Unintended		*Total*	Grand total (N)	χ^2
		Mistimed	Unwanted			
Radio exposure						
No	*54.7*	21.9	23.4	*45.3*	469	10.03**
Yes	*67.0*	18.6	14.4	*33.0*	254	
Television exposure						
No	*57.5*	19.7	22.8	*42.5*	583	2.97
Yes	*65.4*	25.0	9.7	*34.6*	140	
Total	*59.0*	20.7	20.2	*41.0*	723	
Travel Time #						
Up to 30 minutes	*62.0*	20.6	17.4	*38.0*	363	
31-60 minutes	*55.0*	20.3	24.7	*45.0*	167	8.17**
More than one hour	*45.9*	25.3	28.8	*54.1*	91	
Total	*57.8*	21.2	21.0	*42.2*	621	
FP workers' visit						
Not visited	*60.2*	20.5	19.3	*39.8*	663	4.77*
Visited	*46.0*	23.8	30.3	*54.0*	60	
Total	*59.0*	20.7	20.2	*41.0*	723	

Note: # Those respondents who didn't know the sources of FP methods are excluded
**p<.05, **p<.01, ***p<.001*
χ^2 *test is done only for total of intended and unintended*

4.2.5 Knowledge and practice of family planning (FP)

Table 4.7 presents the affect of knowledge and practice of FP on unintended pregnancy. As expected, the higher the number of FP method heard, the significantly ($p<.01$) lower the percentage of women reporting the current pregnancy as an unintended (34%). The mean number of method heard was slightly lower for those who had reported current pregnancy as an unintended (6.9 score) compare to those who reported the current pregnancy was not unintended (7.2 score).

Although not significant, surprisingly, the proportion of women who have ever used family planning method (45%) had the higher level of unintended pregnancy. One of the reasons could be the age of women. High chunk of currently pregnant women were youth and their CEB was also less than their desired number of children. Like other developing countries, women in Nepal also do not want to use contraceptive before they achieved their desired family size. The other reason might

be due to user failure or method failure of the family planning or lack of method choice so they dropped out the used method.

Table 4.7 Percentage distribution of the currently pregnant respondents according to their pregnancy intention by knowledge and practice of FP

Knowledge and practice of FP	*Intended*	Unintended		*Total*	Grand total (N)	χ2
		Mistimed	Unwanted			
Knowledge about FP						
Lower	*53.6*	21.7	24.8	*46.4*	411	11.67**
Higher	*66.2*	19.5	14.3	*33.8*	312	
Mean number of method heard	7.2	7.1	6.7	6.9	7.1	
Use of FP method						
Never used	*60.6*	22.3	17.1	*39.4*	518	1.8
Ever used	*55.1*	16.7	28.2	*44.9*	205	
Total	*59.0*	20.7	20.2	*41.0*	723	

*Note: *p<.05, **p<.01, ***p<.001*

χ2 test is done only for total of intended and unintended

4.3 Multivariate analysis

Since the dependent variable is dichotomous, a binary logistic regression model was used to asses the net effect of each of the independent and intervening 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 and intervening variables which were found to have significant effect and conceptually importance in the model. After assessing multicollinarity in the variables, it was found that the variables 'age of women' and 'number of children ever born' were highly correlated. So the variable 'children ever born' was not entered in the logistic regression model.

Three models had been used in the analysis. The first model contained the individual factors such as demographic characteristics, socio-economic factors, access to health information/services and unintended pregnancy. In the second model, socio-cultural factors were added. In the third model, intervening variables were also added and the effect of intervening variables and independent variables on unintended pregnancy was observed.

In the first model, age has positive and statistically significant impact on unintended pregnancy. Similarly, ideal number of children, age at first marriage and listen to the radio have negative and statistically significant impact on unintended pregnancy. The results indicate that for every one year increases in women's age, the odds of women experiencing unintended pregnancy increases by 11 percent [(1-OR)*100] by keeping effect of other individual variables constant in the model. In term of ideal number of children, the likelihood of reporting unintended pregnancy decreases by 24 percent for every unit increase in one ideal number of children. Similarly, increase in every one year of age at first marriage reduces 6 percent of the likelihood of unintended pregnancy among women. Regarding mass media exposure, those who were exposed to the radio are 40 percent less likely to have unintended pregnancy compared to those who were not exposed.

All these four variables retained their significance even after inclusion of cultural factors in the model 2. The reduction on the odd ratio of age, ideal number of children, age at first marriage, radio exposure variables after inclusion of socio-cultural factors (spousal communication, religion and women's autonomy) indicated

that the socio-cultural factors were also important predictors of unintended pregnancy. Model 2 further explained that the women who discussed family planning matter to their husbands were 1.5 times more likely to have unintended pregnancy compared to those who did not discuss about FP issues to their husbands. Regarding religion, Hindu women were 52 percent less likely to have experience of unintended pregnancy compared to other religion keeping all other variables constant in the model.

Model 3 presents the final results after adding intervening variables. Even after inclusion of the knowledge and ever practice of contraceptive variables in model 3, the four individual and two socio-cultural variables were still statistically significant. Furthermore out of two intervening variables, only knowledge about contraception had statistically significant effect on experience of unintended pregnancy. Those women who had higher level (more than average score) of knowledge about contraceptives are 40 percent less likely to experience unintended pregnancy compared to those who have lower level of knowledge (less than average score) about family planning methods (Table 4.8).

Table 4.8 Logistic regression results for unintended pregnancy

		Odds ratios		
		Model I	Model II	Model III
Demographic characteristics	**Age** (in years)	1.112***	1.106***	1.105***
	Ideal number of children (number)	0.761*	0.751*	0.725**
	Age at first marriage (in years)	0.937*	0.926**	0.929*
Socio-economic characteristics	**Literacy**			
	Illiterate (Ref)			
	Literate	1.221	1.212	1.336
	Occupation			
	Not working/Agriculture (Ref)			
	Non-agriculture	0.708	0.587	0.580
	Place of residence			
	Urban (Ref)			
	Rural	0.981	0.963	0.984
Access to health information/ services	**Radio exposure**			
	No (Ref)			
	Yes	0.603**	0.583**	0.628*
	Television exposure			
	No (Ref)			
	Yes	0.930	0.954	0.959
	FP workers' visit			
	Not Visited (Ref)			
	Visited	1.385	1.199	1.274
	Travel Time			
	Up to 30 minutes (Ref)			
	31-60 minutes	1.200	1.159	1.110
	More than one hour	1.549	1.460	1.344
	No response	0.665	0.699	0.607
Socio-cultura factors	**Spousal communication**			
	Not discussed (Ref)			
	Discussed		1.529*	1.633**
	Religion			
	Non-Hindu (Ref)			
	Hindu		0.482**	0.468**
	Women's autonomy			
	No autonomy (Ref)			
	Some autonomy		1.305	1.374
Knowledge and practice of FP	**Knowledge of FP**			
	Lower (ref)			
	Higher			0.600**
	Ever use of FP			
	No (Ref)			
	Yes			0.994
	Intercept	0.091	0.717	0.908
	-2 log likelihood	868.124	852.027	844.900
	Model Chi-Square	74.526***	90.623***	97.750***
	Degree of freedom	12	15	17
	Cox & Snell R square	0.102	0.122	0.131

Note: *=p<.05, **=p<.01 ***=p<.001

4.4 Predicted probability for unintended pregnancy

Predicted probabilities are calculated for selected variables that were statistically significant and conceptually important in the logistic regression model. For unintended pregnancy, predicted probabilities are estimated from the variables: FP knowledge, radio exposure and age at first marriage. These three variables are put in a separate logistic regression analysis in order to examine their effects on unintended pregnancy. The calculations are shown below.

Logit (probability of unintended pregnancy)

= 0.210+ (-0.359) (X1) + (-0.301) (X2) + (-0.021) (X3)

Where,

X1 is the Radio exposure

X1=1, if women exposed to radio

X1=0, if women are not exposed to radio

X2 is the Family planning knowledge

X2=1, if women have higher level of knowledge (more than average score) about family planning methods

X2=0 if women have lower level of knowledge (less than average score) of family planning methods

X3 is the age at first marriage (ranging from average age at marriage 16 to 24 years)

Predicted probabilities are shown in figure 4.6

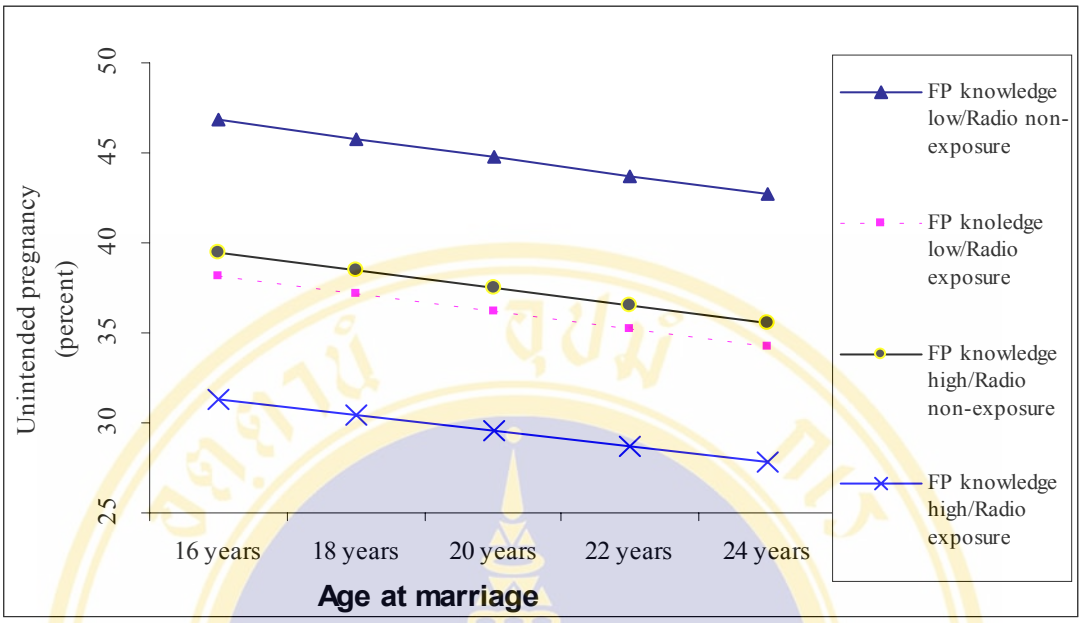

Figure 4.6 Predicted probability of unintended pregnancy by age at marriage, FP knowledge and radio exposure

From the predicted probabilities figure, we can easily observe that the impact of age at first marriage on unintended pregnancy. The probability of experience of unintended pregnancy decreases as the age at first marriage of women increases. However, there are differences in the predicted probability on the radio exposure and FP knowledge level. In the 16 years age at first marriage, those women who had a low level of knowledge about family planning and who were not radio exposed have higher level of unintended pregnancy i.e. 46.9 percent $[1 / 1 + e^{-[0.210 + (-0.359)(0) + (-0.301)(0) + (-0.021)(16)]} = 0.4685]^{*}$.

Or

$$\frac{e^{[0.210 + (-0.359)(0) + (-0.301)(0) + (-0.021)(16)]}}{1 + e^{[0.210 + (-0.359)(0) + (-0.301)(0) + (-0.021)(16)]}}$$

In the same age at marriage (i.e. 16 years), women who had higher level of knowledge about family planning methods and also exposed to the radio have 15.6 percent lower (46.9-31.3) unintended pregnancy than those who have lower level of

* Prob (event) = $e^{z} / 1 + e^{z}$ or $1 / 1 + e^{-z}$, where $z = B_0 + B_1 X_1 + B_2 X_2 + \ldots\ldots B_p X_p$, and e is the base of the natural logarithms

knowledge about family planning and non-exposure of radio. It means that radio exposure and knowledge about family planning methods play a great role to decrease unintended pregnancy. Similarly, at the 24 years of age at marriage, women who have higher knowledge about FP and radio exposure, these women have only 27.8 percent [$1 / 1 + e^{-[0.210 + (-0.359)\ (1) + (-0.301)\ (1) + (-0.021)\ (24)]} = 0.2781$] probability of having unintended pregnancy.

4.5 Discussion

This study has attempted to investigate the influencing factors such as socioeconomic, socio-cultural, demographic, access to health information/services and knowledge and practice of contraceptive on unintended pregnancy. Many studies including present study showed that unintended pregnancy is common in Nepalese women. It indicates that the higher demand of family planning program and more mass media exposure. The result of this study suggests that all women, regardless of age, socioeconomic, or socio-cultural status, would benefit from increased efforts to ensure that pregnancies are intended.

The bivariate analysis showed that the variables such as literacy status, spousal communication, religion, women's autonomy, age, total children ever born, age at first marriage, radio exposure, travel time to nearest FP sources, FP workers' visit and knowledge about FP are important to explain unintended pregnancy. The multivariate analysis supported some of the findings of the bivariate analysis and indicated a different pattern of effect for a few other variables. In the multivariate analysis, age of women, ideal number of children, age at first marriage, radio exposure, spousal communication, religion and knowledge about contraceptives 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 current 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) and Nepal (MOH, 2001).

A contradictory result was observed from the logistic regression regarding the influence of ideal number of children on an unintended pregnancy. In the multivariate analysis, ideal number of children was negatively associated with unintended pregnancy indicating that those women who desired more children were less likely to experience unintended pregnancy. One reason could be more people (93%) live in rural areas and rural women perceive greater benefit from having more children. Hence our sample reflected that the decline in desired family size in Nepal resulted in increased exposure to the risk of having unintended pregnancy.

Like the study in Japan (Goto, et al., 2002), we found significant negative relationship between age at first marriage and unintended pregnancy in Nepal. 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. The other reason could be that the women who have married early may have limited access to services or may experience particular difficulty in practicing contraception.

The multivariate results showed that those who have had regular access to mass media (radio) were less likely to report unintended pregnancy compared to those who have not. It means mass media has played an important role to reduce unintended pregnancy because it gives wider range of knowledge (Flora & Maibach, 1990; Oni & McCarthy, 1990) and leads to adopt contraception and sensitizes couple about the family norms so that they have low parity and low unintended pregnancy (Westoff & Rodriguez, 1995; Odimegwu, 1999).

Both bivariate and multivariate analyses of this sample failed to support the hypothesis regarding spousal communication as a determinant of unintended pregnancy. Women who had discussed about family planning in the last 12 months with their husbands had higher level of unintended pregnancy. It could be due to a patriarchal and male dominated Nepalese society. Women's perception that their husbands oppose family planning is a dominant factor for discouraging contraceptive practice in Nepal (Stash, 1999). If a husband would like to have a big family, then a woman had to follow his wish.

Unintended pregnancy was more common in Non-Hindu women compare to Hindu women. One of the reasons could be the Hindu women likely to accept pregnancy as "Given by God" or "Treasure of the Family". The other reason might be due to considerable proportion (38%) of Muslim women among Non-Hindu category. Islam restricts women's activities in ways that other religions do not (Caldwell, 1986).

We hypothesized that women who have higher knowledge about contraceptives (more than average) are less likely to experience unintended pregnancy. Our result supports the hypothesis that 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. The similar result is found in Ecuador as well (Eggleton, 1999).

In this study, there was no significant association between the experience of unintended pregnancy and women's education as in Japan (Goto, 2002), and occupation like the study found in Iran (Abbasi-Shavazi et al., 2004). In Japan, most of the women are educated and they prefer not to have children or to have less children compare to other Asian countries. So there is no significant difference in the experience of unintended pregnancy among different educational level of Japanese women. In case of Nepal, the literacy rate of women is very low and huge numbers of women have not more than primary education and other social cultural factors are strongly influenced on the intended pregnancy status; hence education is statistically not significant. However, it should not be concluded that education is not significantly related to intended pregnancy status and thus we should not ignore the importance of education for the better life of women.

Similarly, contrary to the hypothesis, women's autonomy has no significant association with unintended pregnancy. In this study, women's autonomy was measured from the final say on their 'own health care' and 'spending their own earned money'. This is because 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 & Tej, 1987) and the possibility that women who earned cash are associated with households of low economic status and the job itself was low status jobs.

Although statistically not significant, women who have the exposure to TV and lived near the health facilities had lower unintended pregnancy than women do in the comparison group. Ever use of family planning method has significant relationship with intended pregnancy status of women in many literature, however, the result come out from this study is not similar with usual. The reasons were identified as the complexity of using contraceptive or lack of methods choice, method failure and the financial barriers to effective contraceptive methods. It was seen that the individual or community perception about contraception is important factor, which affects contraceptive use. Similarly, misconception leads to discontinuation and decreases the use of contraception and increases the level of unintended pregnancy (Senanayake,

2001). Thus it can be argued that misconception about FP methods exist among the Nepalese women. High FP method failure among married women in the reproductive age is also prevalent in Nepal (Tamang, et al., 2002). However it does not imply that FP use is not an important determinant of unintended pregnancy among married pregnant women in Nepal, it rather reflects the situation that the variable FP ever uses acts indirectly on unintended pregnancy in this study.

From the predicted probability it is clearly seen that women in the delayed age at marriage with radio exposure and have a higher knowledge about FP methods have very low probabilities for unintended pregnancy. This demonstrates that FP knowledge, radio exposure and age at marriage play a vital role to reduce unintended pregnancy.

Based on some theories and empirical evidences, it is hypothesized that the knowledge and practice on family planning act as an intervening variables with unintended pregnancy. From the logistics models it can be observed that the variables which are significant in the first and second model also retained the significant when we introduced intervening variables. It implies that the relationship of these variables do not go through intervening variables with unintended pregnancy. Thus we can conclude that these variables have direct effect with unintended pregnancy so that our sample is failed to support the hypothesis that the knowledge and ever used of FP act as an intervening variables in the case of Nepal. We can conclude that the age of women and spousal communication have direct positive influence on unintended pregnancy. Furthermore ideal number of children, age at first marriage, religion (Hindu), radio exposure and FP knowledge have direct negative influence on unintended pregnancy.

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 term of information on contraceptive methods and access to the services. If the program focused to reduce unintended pregnancy and try to make 100 percent intended pregnancy, the program should focus all these identified

issues so that abortion, maternal morbidity and mortality, infant morbidity and mortality will decrease and the overall health status of the family can be improved with appropriate birth spacing and family size.

CHAPTER V

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Despite the introduction of family planning and safe motherhood program, the maternal mortality rate in Nepal is very high. One of the reasons for such a high maternal mortality rate is unintended pregnancy because unsafe abortion is frequent consequence of it. Unintended pregnancy is a potential hazard for every sexually active woman and worldwide problem that affects women, their families, society and Nation. As fertility level has been approaching downward, the length of potential exposure to unwanted pregnancies is increasing further. It is also a problem of public policy and institutional practice. Unintended pregnancy is not a rare event among the married women in the reproductive age in Nepal (Ministry of Health (Nepal), New ERA, and ORC Macro, 2002).

The overall objective of this study is to investigate the influencing factors such as socio-economic, socio-cultural, demographic, access to health information/services and knowledge and practice of contraceptive on unintended pregnancy. The study has used the data from 2001 Nepal Demographic and Health Survey (NDHS, 2001). Out of 8,726 interviewed women 751 (8.6%) were currently pregnant women at the time of survey. The total study population was 723 because some cases (28) were excluded from the analysis due to missing data on intention status of current pregnancy. Univeriate, bivariate and multivariate analyses were performed in this study.

The present study has found that slightly more than one fifth of the respondents (21%) had mistimed pregnancy and other one-fifth (20%) had unwanted pregnancy. Combining the two categories labeled as unwanted and mistimed, two women out of five (41%) reported their current pregnancies were unintended. The

multivariate analysis supported some of the findings of the bivariate analysis and indicated a different pattern of effect for a few other variables. In the multivariate analysis, variables such as age of women, ideal number of children, women age at first marriage, radio exposure, spousal communication, religion and knowledge about family planning have a significant effect on unintended pregnancy among currently pregnant married women of Nepal.

From the logistics models, it is found that the variables which are significant in the first and second model also retained the significant after adding intervening variables. It indicates that the relationship of these variables do not go through intervening variables with unintended pregnancy. All these variables have direct effect with unintended pregnancy so that our sample is failed to support the hypothesis that the knowledge and ever used of FP act as an intervening variables in the case of Nepal

It is found that the age of women is the strongest predictor of unintended pregnancy. There is positive relationship between age of women and unintended pregnancy rate. In other word, the higher the age of women, the higher the rate of unintended pregnancy. The other demographic variable such as age at first marriage has negative relationship with unintended pregnancy. It means that higher age at first marriage of the women leads to lower rate of unintended pregnancy.

Those women who had exposed to the radio had lower level of unintended pregnancy compare to those who did not. Similarly unintended pregnancy was lower for those women who believe in Hindu religion. The study has proved that higher level of knowledge of contraception leads to lower level of unintended pregnancy. Against expectation, the study has also showed that those women who have discussed about family planning methods with their spouse had higher level of unintended pregnancy. These findings are contrary to hypotheses and needs further research.

Predicted probability has shown that women in the delayed age at marriage with radio exposure and have a higher knowledge about FP methods have very low probabilities for unintended pregnancy. This also demonstrates that FP knowledge, radio exposure and age at marriage have a significantly negative effect on unintended pregnancy.

In conclusion, the unintended pregnancy rate among currently pregnant married women in Nepal is very high. No single factor accounted for the high rates of unintended pregnancy; many factors were associated in this regard. Among them, the study has found that age of women, ideal number of children, women's age at first marriage, radio exposure, spousal communication, religion and knowledge of family planning methods were the strong predictors of unintended pregnancy. In short, it can be concluded that to reduce the unintended pregnancy, family planning and reproductive health services need to provide widespread information on effective contraceptive use and their access.

5.2 Recommendations

We have proposed some policy recommendations based on the findings of the present study that could be useful in developing strategy to reduce unintended pregnancy among married women of the reproductive age in Nepal.

- Age at first marriage of the 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.
- It was observed from the result that older women are more likely to experience unintended pregnancy so the program should target these women who have already completed their fertility desire.
- More emphasis is needed on mass media messages, especially through radio, addressing the advantages of small family size and family planning message. Mass media give wider range of knowledge and leads to adopt contraception and sensitize couple about the family norms. It will be better if these programs will use local dialects to reach the target population
- Although not significant in logistic model, it was found from the bivariate analysis that those who visited by FP workers and who ever used FP had higher level of unintended pregnancy. So the program should focus on monitoring and evaluation of FP workers' work as well as availability and accessibility of FP methods and quality of family planning program.

- Spousal communication has positive effect on unintended pregnancy. 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 can 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 has supported the hypothesis that 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 country. The role of quality of care in improving women's ability to achieve their reproductive goal is another important aspect. So it should be given special attention.

5.3 Suggestions for further research

The results point out the need for further research in several areas.

- 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.
- The information about the proportion of unintended pregnancy which caused by non use of contraception, contraceptive failure or inconsistent or inaccurate use would be more important for policy makers and program planners to develop strategy. The data source of the present study could not cover this type of information.
- Information on women's feeling about pregnancy may change throughout the gestation period so qualitative approach is suitable to catch such issues.
- This study has shown the positive effect of spousal communication on unintended pregnancy. Further research is needed to determine the exact nature and pattern of this relationship.

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APPENDIX TABLE

Table A1 Logistic regression results for unintended pregnancy

	Model I			Model II			Model III		
	B	S.E	EXP (B)	B	S.E	EXP (B)	B	S.E	EXP (B)
Demographic characteristics									
Age (in years)	.107	.016	1.112***	.101	.016	1.106***	.100	.016	1.105***
Ideal number of children (number)	-.274	.115	0.761*	-.287	.118	0.751*	-.322	.119	0.725**
Age at first marriage (in years)	-.065	.028	0.937*	-.077	.029	0.926**	-.074	.029	0.929*
Socio-economic characteristics									
Literacy									
Illiterate (Ref)									
Literate	.199	.209	1.221	.193	.212	1.212	.290	.217	1.336
Occupation									
Not working/Agriculture (Ref)									
Non-agriculture	-.345	.349	0.708	-.533	.368	0.587	-.544	.370	0.580
Place of residence									
Urban (Ref)									
Rural	-.019	.294	0.981	-.038	.297	0.963	-.016	.300	0.984
Access to health information/ services									
Listens to radio									
No (Ref)									
Yes	-.505	.184	0.603**	-.540	.187	0.583**	-.466	.191	0.628*
Watches television									
No (Ref)									
Yes	-.073	.243	0.930	-.047	.246	0.954	-.042	.248	0.959
FP worker visit									
Not Visited (Ref)									
Visited	.326	.296	1.385	.181	.301	1.199	.242	.306	1.274
Travel Time									
Up to 30 minutes (Ref)									
31-60 minutes	.182	.209	1.200	.148	.214	1.159	.105	.216	1.110
More than one hour	.438	.265	1.549	.378	.272	1.460	.295	.278	1.344
No response	-.407	.265	0.665	-.358	.273	0.699	-.499	.284	0.607

Logistic regression results for unintended pregnancy (Contd…)

	Model I			Model II			Model III		
	B	S.E	EXP (B)	B	S.E	EXP (B)	B	S.E	EXP (B)
Socio-culture factors									
Spousal communication									
Not discussed (Ref)									
Discussed				.425	.173	1.529*	.491	.183	1.633**
Religion									
Non-Hindu (Ref)									
Hindu				-.729	.248	0.482**	-.760	.249	0.468**
Women autonomy									
No autonomy (Ref)									
Some autonomy				.266	.216	1.305	.318	.220	1.374
Knowledge and practice of FP									
Knowledge of FP									
Lower (ref)									
Higher							-.511	.194	0.600**
Ever use of FP									
No (Ref)									
Yes							-.006	.205	0.994
Intercept	-1.146	.677	0.091	-.332	.765	0.717	-.096	.773	0.908
-2 log likelihood			868.124			852.027			844.900
Model Chi-Square			74.526***			90.623***			97.750***
Degree of freedom			12			15			17
Cox & Snell R square			0.102			0.122			0.131

*=p<.05, **=p<.01 ***=p<.001

Tables A2 Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Unintended Pregnancy	1																
2	Age	.271	1															
3	Ideal number of children	.057	.310	1														
4	Age at first . marriage	-.072	.065	-.266	1													
5	Number of children born	.392	.823	.388	-.229	1												
6	Literacy	-.100	-.313	-.322	.273	-.350	1											
7	Occupation	-.060	-.037	-.157	.153	-.079	.244	1										
8	Residence	.052	.061	.110	-.172	.106	-.243	-.201	1									
9	Listen to the radio	-.119	-.085	-.280	.192	-.171	.294	.170	-.123	1								
10	Watches Telivision	-.063	-.135	-.187	.101	-.193	.334	.262	-.337	.196	1							
11	FP worker visit	.080	.056	.015	-.087	.083	-.075	.023	.014	.026	.027	1						
12	Travel time to the FP sources	.019	.061	.212	-.023	.102	-.228	-.169	.090	-.198	-.222	-.069	1					
13	Spousal communication	.105	.038	-.119	.047	.035	.122	.106	-.028	.150	.055	.145	-.194	1				
14	Religion	-.098	-.159	-.149	-.075	-.186	.121	.025	-.032	.099	.099	-.026	-.184	.109	1			
15	Women's Autonomy	.091	.141	-.038	.143	.109	.049	.264	-.048	.092	.062	.098	-.114	.072	-.034	1		
16	FP Knowledge	-.127	-.112	-.274	.170	-.186	.338	.131	-.081	.331	.155	.082	-.335	.233	.101	.123	1	
17	FP ever Used	.050	.081	-.104	.107	.061	.141	.083	-.078	.097	.160	.058	-.292	.330	.016	.150	.263	1

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