# SOCIO-ECONOMIC DETERMINANTS OF MODERN CONTRACEPTIVE USE AMONG MARRIED WOMEN OF REPRODUCTIVE AGE IN BHUTAN

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**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS (POPULATION AND REPRODUCTIVE HEALTH RESEARCH)**

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was submitted to the Faculty of Graduate Studies, Mahidol University
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***Sonam Phuntsho***

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## ABSTRACT

This study investigated the determinants influencing modern contraceptive use among married women in Bhutan. It targeted the women of reproductive age (15-49) residing in twenty different districts across the country. The study examined the effects of five variables based on socio-economic and demographic determinants on the practices of modern contraceptive use. The variables identified were place of residence, level of education, occupation, age and marital status of the women.

This study used secondary data from the Bhutan Living Standard Survey (BLSS) conducted in 2003. The sample size of this study was 3,626 married women. The analysis was done using descriptive statistics (frequency distribution and cross-tabulations).

Bivariate analysis showed that the use of modern contraception increases with increase in age of the women in both urban and rural areas ($p<0.001$). In regard to marital status and contraceptive use, those women who are married tend to use more contraception than those who were never married, separated, divorced or widowed. This was the case in both urban and rural areas ($p<0.001$).

In regard to socio-economic determinants, level of education had a significant effect upon the use of modern contraception among married women both in urban and rural areas ($p<0.001$). In addition, the use of modern contraception was greater among married women who have done some type of training like professional, religious or vocational in both urban and rural areas ($p<0.001$). There was no association between occupation and contraceptive use among married women in urban areas however the relationship between these factors in rural areas was found to be statistically significant at $p<0.001$.

KEY WORDS: CONTRACEPTIVE USE/PLACE OF RESIDENCE/LEVEL OF EDUCATION/OCCUPATION/AGE/MARITAL STATUS

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# CHAPTER I
# INTRODUCTION

## 1.1 Background and Rationale:

Modern contraceptive use is a recent phenomenon in human history, which began only in the late 19th century. This revolution of contraceptive use has various impacts in upholding the wellbeing of the women's reproductive health and on many other socio-economic dimensions, demographic variables, etc. The main intention is to regulate the fertility that led to the first demographic transition in the 18th and 19th centuries (when men used coitus interrupts in the northern industrialized countries). A second demographic transition is taking place now in the southern developing countries viz. Indonesia, Colombia, Thailand and in China. This transition has begun only in the past few decades and has depended substantially on a revolution in contraceptive technology. Contraceptive users in the developing world have increased more than tenfold from estimated 31 million couples in 1960-1965 to 381 million couples in 1985-1990 (UNFPA, 1991). The UNFPA, 1991 states that in between 1960-1965 and 1985-1990, the contraceptive prevalence rate was 13% and 70% in East Asia, 7% and 40% in South Asia, 5% and 17% in Africa, 14% and 60% in Latin America and 9% and 51% in all developing countries respectively.

The contraceptive use in the Southeast Asian countries varies greatly. However, there has been drastic increase in the use of contraceptives over a period. In Bhutan, the family planning was introduced in 1971 in the health care delivery system. By 1980, family planning has been integrated into general health care system and in 1981, the National Institute of Family Health (NIFH) was created, which expanded family planning throughout the country as an integrated service. By 2000, there was notable improvement in contraception use. Bhutan's contraception prevalence rate (CPR) has risen from 18.4% to 30.7% from 1997 to 2000 according to the World Contraceptive Views, 2003; Bhutan Reproductive Health Profiles, 2003. There are various methods

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of contraception used by the married women. According to the Annual Health Bulletin, 2004 published by the Ministry of Health in Bhutan, contraceptive methods like Depomedroxyprogesterone acetate (DMPA) is a commonly used method followed by Oral Contraceptive Pills (OCP) and least common method of family planning in Bhutan are Tubectomy and Vasectomy. The other method used is Injectable Diaphragm Device (IUD). However, the method used varies over the time. The main aim and objective in introducing family planning program in Bhutan is to improve overall health status of women particularly the reproductive health. This publication also gives an insight on general scenario of demographic situation. It cites that in the year 2000, total population was .68 million, life expectancy at birth (years) of 66.1, sex ratio (males per 100 females) of 106.6, dependency ratio of 77.4, general fertility rate of 142.7, total fertility rate of 4.7, crude birth rate (per 1000 population) of 34.1, crude death rate (per 1000 population) of 8.6, population growth rate of 2.5, infant mortality rate (per 1000 live births) of 60.5, under-5 mortality rate (per 1000 live births) of 84.0 and maternal mortality ratio (per 1000 live births) 2.6. Therefore, to improve this situation, the ministry of health had taken family planning program as one of the pivotal roles that would lead in improvement of women's reproductive health.

Nonetheless, there are numerous obstacles in making the contraceptives accessible to all Bhutanese women of reproductive age mainly due to low literacy rate, rugged topography, limited health personnel, rural and scattered population and other socio-economic conditions. Despite the efforts made by the Ministry of Health and other United Nation's Organization to promote use of contraceptives amongst the women irrespective of whether or not they are married at reproductive age, the contraceptive prevalence rate is yet low. It has been inferred in many studies that the use of contraceptives is associated with various demographic, socio-economic, culture, tradition, etc. that determines the contraception use.

In this proposed thesis, I am curious to explore the likely socio-economic determinants that might be influencing the use of modern contraception in Bhutanese women of reproductive age. There are very few studies carried out on this issue and hence many heads of the government, corporate, and above all the policy makers have

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very faint knowledge on this. Consequently, there might be some pitfall in trying to improve and develop what is lagging behind by them. Nevertheless, by this research, one might be informed of what are the factors affecting modern contraception use in Bhutan, and ultimately the policy makers can concentrate more on these factors upon which they can improve and develop.

**1.2 Problem Statement**

Despite every possible efforts made by the Ministry of Health on promotion of modern contraceptive use amongst the women of reproductive age group, yet the contraceptive prevalence rate is low. Of very recently, due to ever-increasing growth rate of population and its consequences on many socio-economic and demographic dimensions, His Majesty the King has issued a royal decree on family planning, emphasizing the importance of population planning for sustainable development. The main problem in availing family planning services is limited access to family planning services itself for the youth. Hence, even if the young women are knowledgeable about use of birth control methods, yet they face obstacles in obtaining them. Another major problem encountered in availing family planning methods and other medical services to the population is the problem posed by topography as major chunk of the population inhabit in remote areas located in the rugged mountainous terrain. This impedes in coordinating social services to rural communities. There is also lack of trained personnel with poor knowledge and skills in technology and counseling. This in turn pervade in adequate supervision in medical technology. Despite, these problems, efforts are continuously made by the ministry of health in improving the medical services to the population (specifically family planning programs) and making it accessible to different parts of the country. There has been various family planning campaigns organized by the ministry of health, governmental and non-governmental organizations too, yet the contraceptive prevalence rate is one of the lowest in the Southeast Asian countries. Therefore, it is vital at this point of time to find out what could be the possible factors affecting low contraceptive prevalence rate. This would help in timely intervention of the program for the policy makers which otherwise might lead to innumerous reproductive health problems of the women and ultimately the wellbeing of the kingdom. This research would assist in finding out how socio-

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economic factors affect their use of modern contraceptive so that the policy makers can make appropriate policies and strategies to be addressed.

### 1.3 General Objective

The general objective of this study is to explore and investigate how the socio-economic and demographic factors are linked with modern contraceptive use by reproductive age of married women in Bhutan.

### 1.4 Specific Objective

To explore demographic and socio-economic characteristics of the married women of reproductive age.

To investigate the relationship between the contraceptive use and demographic and socio-economic characteristics of women.

### 1.5 Research Question

What are the possible socio-economic and demographic determinants that might be affecting the use of modern contraceptive use among the married women of reproductive age in Bhutan?

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# CHAPTER II
# LITERATURE REVIEW

## 2.1. Socio-economic determinants

### *2.1.1 Place of Residence*

Contraceptive use is usually higher among urban people than among rural people in the same country. Among other things, use may be higher in the urban areas because it is probably less difficult to obtain modern contraceptive urban areas than in rural areas. This is usually true even when there is an organized family planning program, because of the difficulty and cost of supplying services to remote and sparsely settled areas. Other possible reasons for the typically lower level of use in rural areas are that rural people may tend to want larger families and that they are usually less well educated and more firmly rooted in the tradition (United Nations, 1988).

A study in Illorin city of Nigeria showed that the area in which the women reside is an important factor determining the use of contraception. In this study, it showed women who lived in the low socio-economic areas (Rural) had the least tendency to have ever used contraceptives (2.1%), while those who lived in high socio-economic areas (Urban) of the city used more contraceptives, which is nearly 31.6% (Oni and MC Carthy, 1986).

In the Knowledge, Attitude and Practice (KAP) Survey in India, 1970 and 1980, it reveals that the current user was higher in urban areas (51%) than in rural areas (31%). During the period 1970-1980, the increase in current users was higher among the urban couples by 24% than the rural couples which were 20%, (Khan and Prasad, 1985).

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In a study carried out by T. Jayanti Man (1987), on effects of family planning availability and accessibility on contraceptive use in Nepal, it has been found that the highest level of knowledge of an outlet for family planning methods was found among the women who have some schooling, are engaged in non-farming occupations, and reside in urban areas.

In another study carried out by Warren et al. (1992) in Swaziland, it was inferred that the prevalence of contraceptive use was almost more than double in urban areas than the peripheral sites of the country. It has also inferred the same result in a study carried out by Malhotra and Thapa in Sri Lanka (1991), that the use of contraceptive is comparatively much more in the urban areas than that of the rural areas.

According to the National Birth Spacing Survey which had been carried out in Lao PDR in 1994, it was found that the contraceptive use among the women residing in the urban areas are three times higher than those women residing in the rural areas (Sisouphanthong et al., 1995).

### *2.1.2 Level of Education*

Education may affect contraceptive use in a multiple ways; it may expose women to modern ideas about contraception and family-size limitation, and it may enhance their ability to exercise control over their sexual relationships and childbearing preferences. Women with more schooling may be more comfortable interacting with the medical personnel and may have better access to sources of modern birth control than women who have little education. In addition, better-educated women may be more likely than others to earn incomes or to live in households having greater incomes, and thus may have greater economic resources or health insurance that could improve their access to birth control and the type of contraception that they prefer (Burgard S., 2004).

In a study carried out by B.Varul et al., (1999) in Kocaeli, Turkey on Factors affecting contraceptive use and behavior, it states that those factors that significantly affected contraceptive use were education level of couples, number of children, nuclear-type family structure and positive attitudes about family planning. This

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indicates how the level of education affects couples' attitudes toward family planning and ultimately the use of contraceptive.

Bhende et al. (1991) in a study carried out in Jamshedpur city of India; found that women's education had a strong positive relationship with an overall use of contraception. This arises from the positive relationship with all permanent methods and negative relationships with male and female sterilization. With regard to the husband's level of education when the natural methods are excluded, the levels of overall use of contraception by wife's education remains more or less constant. When the attitudinal variables are deleted from the model, it reduces the negative relationship of wife's education with male and female sterilization, and makes the positive relationship with overall use of contraception even stronger. This infers that part of influence of women's education of the contraceptive use operates through more favorable attitudes toward the small family norms.

The most educated women might be expected to use the most effective methods, but the group is also most aware of the potential side effects of the pill, IUD, and others (Chamratrithirong et al., 1986).

It has been shown that better educated the women are, the more likely they are in practicing contraception. In this regard, S.Ali et al., (2004) in the Prevalence and Factors associated with practice of modern Contraceptive Methods among currently Married Women in District Naushahro Feroze had shown that the better-educated women are more likely to practice contraception. Nonetheless, in their study they did not find significant association with level of education and practice of contraceptive methods. They suggested that the low status of women is possibly a factor in the limited use of family planning methods in Pakistan.

Women's education is widely recognized as one of the most important determinants of reproductive behavior in the developing countries (Cochrane, 1979). Cochrane (1976) in another studies, "Describing the Role of Education on Reproductive Behavior" stated that women's education is widely recognized as one of the crucial factors of reproductive behavior in the developing countries.

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Malhotra and Thapa in Sri Lanka (1991) had revealed a positive relationship between education and the use of contraceptives in their studies. This study showed that women who were practicing either traditional or modern contemporary methods of contraception overall were comparatively better educated compared to those both non-users and sterilized. Likewise, in another study carried out by Guilkey and Jayne in Zimbabwe (1997), it showed that those women with seven years of schooling or more were using more modern contraceptive than those who have not undergone schooling.

### *2.1.3 Occuaption*

In most of the studies by various social scientists, it is shown that income of the women has its positive relationship with the use of modern contraception. Those women who are involved in income generating activities have positive impact on family planning practice (Ntozi and Kabera, 1991 and Rahman, 1995). According to Rahman (1995), the economic status of responding women has positive relationship in deciding whether to practice family planning.

In a study carried out by Narsingh (1997), it is shown that the working women have more likelihood in using modern contraception than those who are not. Besides, it also reveals that due to their social network created due to their work; these groups of women know more about the contraception than those who does not work. Similarly, it has also been revealed in a study in India by Dharmalingam and Morgan (1996) that those women who were working had more autonomy in birth spacing, birth limiting and in deciding the use of contraception.

In Thailand, occupation had in the past some effects on the level of contraceptive use. However, a most recent study indicates that the influence of this factor on contraceptive use is dissipating (Leoprapai and Thongthai, 1989). This could be mainly due to the effects of fertility transition in this country.

In one of the studies conducted by Shapiro and Tambashe in Zaire, 1994, it clearly shows the importance of women’s employment status and its effects on their contraceptive behavior. Their findings suggest, after controlling other factors that

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those women who were self-employed and those who were employees had significantly higher predicted probabilities of using any method of contraception than those who were not employed, and the likelihood of contraceptive use is the greatest for employees. It had also been highlighted by Leoprapai and Thongthai (1983) that the use of contraception is lowest amongst those who were not working and who were mere homemakers. Besides, they also state that there is still a positive relationship between women's labor force participation and contraception.

The relationship between women's employment status, the type of work, on one hand and their contraceptive practice on the other are an important subject for review. Employment, especially in jobs performed away from home is viewed as an "index" of commitment and involvement in non-familial roles. Presumably women who leave the home to work may find the role competitive (in terms of time and resources) with the maternal role and limit their fertility as a consequence (Blake, 1965).

It is however, relevant to ask whether occupation has any effect on contraceptive use that is not attributable to the fact that education and occupation are correlated. Analysis report of the 1981 World Fertility Survey shows that although wife's occupation was rather strongly related to contraceptive use before wife's education was controlled for, in 9 out of 17 countries, there was no significant effect of occupation once the influence of wife's education was controlled for (United Nations, 1981).

In a study that was carried out by Wai (1995) in Myanmar, it was found that the women who are engaged in agricultural and non-agricultural occupations are 28 percent and 24 percent respectively are less likely to use contraception than those women who are not working. This could be due to insufficient time for they are more engaged in agricultural work and other household chores.

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## 2.2 Demographic determinants

### *2.2.1 Age of women*

Current contraceptive use is typically highest among women in the middle of the reproductive ages from 25-39 years. Findings of the three contraceptive prevalence surveys (1987-1984) in Thailand show that the extent of contraceptive use varies with age, reaching the peak in the thirties and declining thereafter (Kamnuansilpa and Chamratrithirong, 1985). Besides, results of 1987, Thailand Contraceptive Use Patterns (CUPS) also highlighted a similar age pattern of contraceptive use (Leoprapai and Thongthai, 1989).

According to United Nations, 1981, it states that there are several possible reasons for the typical curvilinear relationship between contraceptive use and age. Firstly, use of contraceptives is usually higher among older cohorts due to cumulative use than younger cohorts are. Secondly, older women aged 45-49 years may be less likely to use contraception because of the adherence to traditional norms, which discourage contraceptive use. Young women aged 15-19 years on the other hand may be less subject to the influence of tradition, but may also relatively be informed poorly about contraception. Furthermore, many of them will be trying to have more children.

Usually, in many countries, contraceptive practice is higher in the older age women of reproductive age. In the context of the recent introduction of contraceptive use in the society, most contraceptive users will be older women or women of high parity. This, in fact, corresponds to the stage of family planning program in Indonesia (Soeradji and Hatmadji, 1980). They had also revealed that the high level of contraceptive use among women in their intermediate age groups inferred in their studies has also been observed in many other countries with recent widespread promotions of family planning programs.

Reports of fertility and family planning surveys in different countries shows that the current use of contraception is most common among the women aged 30-39; least common among the youngest aged women; gradually increasing to peak during the mid- to late-childbearing years, then dropping with the women of oldest age. Older

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women aged 40-44 are less likely to use family planning than younger women, especially in Latin America. This pattern indicates that women tend to stop using contraception, as they grow older. This could be because older women are less fecund and have less frequency of intercourse, and hence, they seldom feel in need of contraceptive use. On the other hand, the pattern undoubtedly reflects the long-term trend towards contraceptive use. Each subsequent group of women born in each five-year period is more likely to use contraception than the groups born in earlier periods. Older groups passed through their peak reproductive years when contraceptives were less accepted. Hence, they are less likely to know about and to use contraceptives. With time and especially with the growing use of voluntary female sterilization, levels of contraception among older women are likely to increase (POPULATION REPORTS, 1985).

Peng and Abdurrahman (1980) in their study in Malaysia found that the pattern of using contraception takes an inverted “U-shaped” curve in accordance to the age. They have stated that there is relatively lower use among women in the younger age followed by higher use in the middle age and ultimately drops afterwards. In another study by David and Susan (1997) in Zimbabwe, they also found that women between 25-35 years of age were using more modern contraceptive methods than that of higher or lower age group of the women.

In a study carried out by Martin et al, (2000), it has examined the various factors that are associated with use of condoms only. This study may not be applicable for other modern methods of contraception viz., pill, Injectable, IUD and Norplant, but he has found statistically significant relationship between age and choosing condom as a temporary method of contraception.

Although age of women is one of the most important characteristics of contraceptive use, yet there has been lot of debates going on regarding the relationship of the age of the respondents and the use of contraception and its knowledge. Previous studies has emphasized that the women who are in younger ages are more aware of contraceptive methods and as well are more likely to use contraceptive than older women age group (Molyneaux et al., 1991, Samijo, 1991, and Chacko, 2001).

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### *2.2.2 Marital Status*

In a study conducted by B. Sarah (1994), on Factors Associated with Contraceptive Use in Late- and Post-apartheid South Africa, it is revealed that modern contraceptive is more used by the women who are unmarried, specifically the injectable contraceptives. The author states that never-married women were more likely to use injectable contraceptives than ever-married women across racial groups (although the figures for Indian/Asian and white never-married women are less reliable because of the small numbers of respondents in this category. The results for the logistic regression models in the same study explains that although black never-married women in all age groups are significantly more likely than their ever-married counterparts to use modern contraceptives, yet colored women who have never been married are significantly less likely than their ever-married counterparts to use modern contraceptives.

In another study carried out by M. Tiisetso (1191), on Contraceptive Prevalence in Lesotho, it has shown that among the currently married women, those residing in male-headed households use modern contraceptive more than their counterparts residing in female-headed households and the opposite is the case for never-married women where women residing in male-headed households use contraceptives more than their counterparts residing in male-headed households.

## 2.3 Summary of the Literature Review

From the foregoing literature review, it clearly indicates that socio-economic and demographic determinants have strong influence upon the use of modern contraceptive in various ways. The use of contraception by women residing in two different place of residence: urban and rural is found to be different. Normally, it has been observed that those women who reside in urban areas tend to use more contraception than those who resides in rural areas. This could be because women residing in urban areas are socio-economically more advanced than those in the rural areas are. These section of women are comparatively more educated, have high economic status besides eased by the characteristics of urban areas whereas, it might be quite contrary to women residing in rural areas.

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The literature review also reveals the difference in the use of modern contraception in relation to women who have attended school and those who have not. Although this can be debatable, yet it is shown in the foregoing literature review that contraception use by the women who have attended school surpasses those who have not attended school. Nonetheless, education of a woman is one crucial factor, which predetermines the size of family and ultimately in the use of contraception.

Employment status of the women is another important factor determining the use of modern contraception. The literature review shows that women who are employed tend to use more contraception than those women who are not. The employment status of a woman would mean the affordability power of the women as they earn wages/salary for their employment. The literature review also explains that women who are employed tend to build good social network amongst one another and hence they have more knowledge of contraceptive use than those who are not employed.

The age of the women is another factor that has its impact upon the use of contraception. Those women in the young age group are usually fond to use low contraception than those in the middle age group. The foregoing literature review shows that the use of contraception by age group follows U-shaped curve with low contraceptive use in the younger age group (15-24) reaching its peak in the middle age group of 25-34 and then drops there after. This explains the variations in the use of contraception among the women of reproductive age group.

According to the aforementioned literature review, there is also significant positive relationship between use of contraception and the children born to a mother. The women who have given birth tend to use more contraception comparatively to women who have not given birth. It also shows that with an increasing number of birth given by the women, there is also increase in the use of contraception.

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## 2.4 Conceptual Framework:

According to many studies carried out in the past, which are reflected in the literature review, several factors tend to determine the use of modern contraception by the women of reproductive age. The use of contraception might be affected by factors such as demographic, socio-economic, and cultural and other program-related factors. However, in this study of modern contraceptive use by the married women of reproductive age (15-49) in Bhutan, I have tried investigating socio-economic and demographic factors on use of modern contraceptive for Bhutanese women of reproductive age. The selection of these variables is based on the literature review done from past studies. Many social scientists have reiterated about this associations. This conceptual framework in gist delineates how the use of modern contraceptives is affected by socio-economic and demographic determinants. One can clearly state that though there are various methods of family planning in the advancing era of modern technologies, yet the practice and the choice of the methods are greatly affected by various socio-economic factors. The independents variable has strong influence on the dependent variable. This relationship between the independent variables and the outcome variable is clearly shown with the framework below.

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### *2.4.1 Conceptual Framework for Contraceptive Use*

**Independent variables** **Dependent variable**

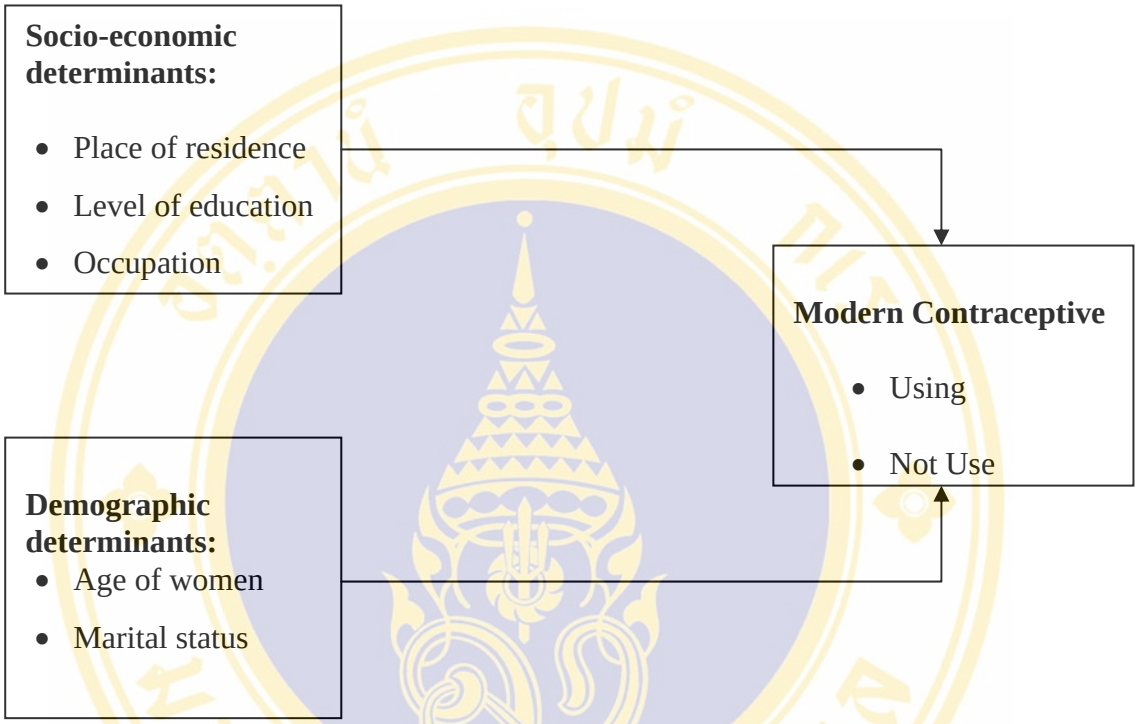


**Figure 0.1: Conceptual Framework**

## 2.5 Hypothesis

1. Those women who have attended higher level of education are likely to use more contraceptive than those who have not attended school.
2. Women who are in agriculture are less likely to use contraceptive than those who are not in agriculture.
3. The residents (women) of urban areas may use more contraceptive than those who resides in rural areas.
4. Married women are more likely to use contraceptives than those who are never-married, separated or widow or divorced.
5. Women in the middle age group may use more contraceptives than those who are old and young.

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## 2.6 Operational definitions of variables

### *2.6.1 Dependent variable*

Modern contraceptive use: Modern contraceptive use refers to the current use of contraceptive by the married women of reproductive age at the time of interview. The dependent variable, the use of modern contraception is scored ‘1’ when the respondents reported current use and ‘0 when the respondents reported not using the contraception.

### *2.6.2 Independent variable*

Place of residence: This variable refers to the place of residence of the respondents at the time of interview. The residence is further classified into two categories; rural and urban. The respondents residing in the urban areas were scored as ‘1’ and those residing in the rural areas as ‘2’.

Level of education: This variable refers to education level that the women aged 15-49 might have attended at the time of interview. The level of education are categorized into 6 types: grade 1 to 6 as primary, 7 to 8 as lower secondary, 9 to 12 as higher secondary, 13 to 15 as graduate, those who have attended (religious, vocational,) as other trainings and lastly who never attended any school or trainings.

Occupation: The occupation of the women aged 15-49 refers to any kind of work that the woman was involved for the last 1 year from the day of interview. There are 5 categories of women’s occupation for this study. The first category is agriculture followed by industry, service, others and who do not work.

Age of woman: The age of women refers to the current age of women of reproductive age (15-49). For analytical purposes, age had been classified into three categories: 15-19, 20-34 and 35-49. The age group 15-19 had been termed as young age group, 20-34 as adult age group and 35-49 as old age group. Further age group 15-20 had been scored as ‘1’, 20-34 as ‘2’ and 35-49 as ‘3’ respectively for analytical purposes. The rationale behind categorizing age as aforementioned is, in Bhutan many women get married at an early age of around 19 years. So, categorizing the age in

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these three broad group would assist in classifying them as young mother (15-19), adult mother (20-34) and old mother (35-49) which would ultimately help in finding which group uses more or less contraceptive for appropriate policy implementation.

Marital Status: This variable refers to the women of reproductive age (15-49) who were married at the time of interview (married), who were never married on the day of interview (never Married), who were married once but had been divorced legally (divorced), who were married once but then staying separately from husband but not legally divorced (separated) and those women whose husbands were demised (widow).

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# CHAPTER III
# RESEARCH METHODOLOGY

## 3.1 Sources of Data

The data for this study is from Bhutan Living Standard Survey (BLSS), 2003 which is a nation-wide survey of households undertaken by the National Statistical Bureau. The Bhutan Living Standard Survey undertaken by National Statistical Bureau of Bhutan in 2003 is an improved version of the Pilot Household Income and Expenditure Survey (HIES), 2000. This survey (BLSS) followed the Living Standard Measurement Survey (LSMS) methodology developed by researchers at the World Bank. The survey was designed to collect only consumption expenditure from the household in order to assess the people's well-being. Nonetheless, despite collecting this information, the BLSS collected other information on housing, employment, health status, fertility, education, access to public health facilities, assets ownership, accompanied by a community questionnaire aimed at collecting information on service provision and prices of various commodities. The broad objective of this survey was to collect detailed information about the economic and social conditions of households.

## 3.2 Sample Size

The BLSS methodology has been customized for Bhutanese population, which collected information through an integrated household questionnaire covering consumption, assets, housing, education, health, fertility accompanied by a community questionnaire that aimed at collecting information on services and the prices of the common commodities.

The sample size for the survey is 4120 households distributed by urban and rural areas (Bhutan Living Standard Survey, 2003).

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### 3.3 Methodology

The Bhutan Living Standard Survey followed by the Living Standard Measurement Survey (LSMS) methodology was developed by the World Bank. It has been customized for Bhutanese population and collected information through an integrated household questionnaire covering consumption, assets, housing, education, health, fertility, accompanied by a community questionnaire aimed at collecting information on services and prices of the common commodities. Mapping of the urban centers was conducted and a sketch map was drawn for all the urban centers included in the survey prior to the block selection.

### 3.4 Data Analysis and management:

The data were analyzed with the help of the SPSS software package using desktop computers available at IPSR, Mahidol University. Descriptive Statistics, specifically frequency distribution were used for describing the distribution of background characteristics of the sample population.

To examine the relationships between demographic determinants, socio-economic determinants and health status characteristics with that of modern contraceptive use, bivariate analysis had been used. Specifically, chi-square was used to find out the association between all selected socio-economic, demographic and health status characteristics with dependent variable (Modern contraceptive use).

### 3.5 Limitation of the study

This study is based on the secondary data from Bhutan Living Standard Survey, which was conducted in 2003 by National Statistical Bureau of Bhutan. First and foremost, this survey was conducted in order to collect information pertaining to economic and social conditions of the households. In this regard, the survey was not intended to collect information on family planning programs of the population. This limited my scope of including variables that are related to family planning programs in Bhutan due to the dearth of information in this area. Though, there are enough information collected about socio-economic conditions, yet due to lot of missing

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cases, many variables could not be included in this study. For instance, level of education is important variable that determines use and non-use of modern contraceptive for the women in reproductive age. But, in this survey (BLSS, 2003), there are only 653 cases which means 2973 cases were missing from the selected sample size of 3626 cases. Hence, I had to select school attended and not attended as a variable under education. The other variable that limited my studies further is occupation of the people. In many studies that had been carried out by different social scientists, it had been inferred that use of modern contraception is usually higher among those women who work in non-agricultural activities than those working in the agricultural section. However, since there were 1785 missing cases from the selected sample size of 3626I (only 1841 were valid cases); occupation of the women in reproductive age could not be selected as desired. Had the data set contained enough variables with no or few missing cases for this study, the study could have been more interesting. Nonetheless, the findings, though with limited variables infers very reasonable impact of demographic and socio-economic variables on use of modern contraceptive by the women of reproductive age in Bhutan.

Besides, the low quality of data set for this study in conjunction with scant information on family planning program of the data, there were very faint studies conducted about family planning in Bhutan. Had there been information related to family planning method of the country that had been conducted prior to this study, it would have assisted in guiding and supporting my studies. In absence of this, all literature had to be done from the studies carried out in other countries assuming same situation would exist in Bhutan too. I also deemed to select many other socio-economic, demographic, cultural and programmatic variables besides those that had been selected that possibly would have its influence upon the use of contraception by the married women of reproductive age in Bhutan, but due to the same reason stated, I was left with few variables.

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**Table 3.1: Operational Definition of the Key Variables**

| Variable | Description | Scale of measurement |
|---|---|---|
| **1/ Dependent Variable**<br>Modern Contraceptive Use | Modern contraceptive use refers to the current use of contraceptive by the married women of reproductive age at the time of interview. The dependent variable, the use of modern contraception is scored '1' when the respondents reported current use and '0 when the respondents reported not using the contraception. | Categorical Scale<br>0 = No<br>1 = Yes |
| **2/ Independent Variable**<br>**Place of residence** | This variable refers to the place of residence of the respondents at the time of interview. The residence is further classified into two categories; rural and urban. The respondents residing in the urban areas were scored as '1' and those residing in the rural areas as '2'. | Nominal Scale<br>1 = Urban<br>2 = Rural |
| **Level of education** | This variable refers to education level that the women aged 15-49 might have attended at the time of interview. The level of education are categorized into 6 types: grade 1 to 6 as primary, 7 to 8 as lower secondary, 9 to 12 as higher secondary, 13 to 15 as graduate, those who have attended (religious, vocational,) as other trainings and lastly who never attended any school or trainings. | Ordinal Scale<br>1= Primary<br>2 = Lower Secondary<br>3 = Higher Secondary<br>4 = Graduate<br>5 = Never attended School/ Training |

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**Table 3.2: Operational Definition of the Key Variables** (Cont…)

| Variable | Description | Scale of measurement |
|---|---|---|
| **Occupation** | The occupation of the women aged 15-49 refers to any kind of work that the woman was involved for the last 1 year from the day of interview. There are 5 categories of women's occupation for this study. The first category is agriculture followed by industry, service, others and who do not work. | Nominal Scale<br>1 = Agriculture<br>2 = Industries<br>3 = Service<br>4 = Others<br>5 = Do Not Work |
| Age of women | The age of women refers to the current age of women of reproductive age (15-49). For analytical purposes, age had been classified into three categories: 15-19, 20-34 and 35-49. The age group 15-19 had been termed as young age group, 20-34 as adult age group and 35-49 as old age group. Further age group 15-20 had been scored as '1', 20-34 as '2' and 35-49 as '3' respectively for analytical purposes. The rationale behind categorizing age as aforementioned is, in Bhutan many women get married at an early age of around 19 years. So, categorizing the age group in these three broad age group would assist in classifying them as young mother (15-19), adult mother (20-34) and old mother (35-49) which would ultimately help in finding which group uses more or less contraceptive for appropriate policy implementation. | Ordinal Scale<br>1 = 15-19<br>2 = 20-34<br>3 = 35-49 |

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**Table 3.3: Operational Definition of the Key Variables** (Cont…)

| Variable | Description | Scale of measurement |
|---|---|---|
| **Marital Status** | This variable refers to the women of reproductive age (15-49) who were married at the time of interview (married), who were never married on the day of interview (never Married), who were married once but had been divorced legally (divorced), who were married once but then staying separately from husband but not legally divorced (separated) and those women whose husbands were demised (widow). | Nominal Scale<br>1= Married<br>2= Never-married<br>3= Separated<br>4= Divorce<br>5= Widow |

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# CHAPTER IV
# RESULT AND DISCUSSION

In this chapter, the results and discussion of analysis are presented. The first part presents the general characteristics of selected background variables. This part comprises of frequency distributions of the sample population by various selected variables. It is followed by bivariate analysis, which is used for determining the relationships between the selected independent variables and dependent variable.

## 4.1 Knowledge of Modern Contraceptive

Table 2 shows the percentage distribution of currently married women of reproductive age (15-49) who have knowledge about modern contraceptive methods. Of total women of 5,174 in the reproductive age group of 15-49, there are 70 percent of them who do know about one or other type of family planning methods. This means 30 percent of women in reproductive age (15-49) do not have knowledge of modern contraceptive in Bhutan.

**Table 4.1: Percentage distribution of women in reproductive aged (15-49) by knowledge of modern contraception**

| Modern Contraceptive Knowledge | Percent | Number |
|---|---|---|
| Yes | 70.1 | 3626 |
| No | 29.9 | 1548 |
| Total | 100.0 | 5174 |

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### 4.2 Contraceptive Prevalence Rate Among Reproductive Age Group (15-49)

Table 4.2 shows contraceptive prevalence rate among women of reproductive age (15-49) in Bhutan. According to the table, there are 5174 women of reproductive age (15-49) including those who have knowledge of modern contraception and who do not have knowledge of modern contraception. The contraceptive prevalence rate (CPR) is calculated as total number of women in reproductive age (15-49) who uses contraception divided by total women in reproductive age (15-49) multiplied by 100 (1663/5174*100). Therefore, the Contraceptive Prevalence Rate (CPR) according to Bhutan Living Standard Survey in 2003 is 32 percent according to the table 4.2. This means among every 100 women of reproductive age (15-49), there are 3 women using modern contraception.

**Table 4.2 Percentage Distribution of Contraceptive Prevalence Rate Among Women of Reproductive Age (15-49)**

| Contraceptive Prevalence Rate | Number | Percent |
|---|---|---|
| Use | 1663 | 32.1 |
| Non-use | 3511 | 67.9 |
| Total | 5174 | 100 |

### 4.3 Use and Non-use of modern Contraceptive

Table 4.3 presents the general percentage distribution of currently married women of reproductive age (15-49) by those who are using and not using modern contraception among those who have knowledge at the time of interview. According to the table, there are 70 percent who have knowledge of modern contraception from the total women of reproductive age of which 147 cases are missing. The reason for missing cases which is quite high might be attributed to unavailability of the respondents in many cases who refused to cooperate particularly in the urban areas. It is stated in the Bhutan Living Standard Survey, 2003 that there were non-response rate despite the best efforts made by the enumerators and supervisors. The households were treated non-response after three visits. From 70 percent of women in

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reproductive age who have knowledge about modern contraception, 48 percent are using modern contraceptive, while, remaining 52 percent do not use any type of family planning methods. When contraceptive prevalence rate of 2000 (31 percent) according to the Contraceptive View of WHO (2003) is taken into consideration, this is a reasonable increase in use of modern contraceptive over 3 years by the married women of reproductive age in Bhutan. According to the same source, CPR in Bhutan, was 18 percent in 1997 and by 2000 it has increased to 31 percent, i.e., in three years time it has increased by 12 percent. Therefore, increase in use of modern contraceptive to 48 percent in 3 years time (2000-2003) is reasonable, though it is comparatively bit faster when the rate of increase from 1997 to 2003 is considered. In this case, the use of contraceptive from 2000 to 2003 has increased by 17 percent. The reason might be attributed to family planning campaigns that are being organized by Ministry of Health and also due to free distribution of contraceptives.

**Table 4.3: Percentage distribution of married women aged 15-49 by use and non-use of modern contraceptive among those who have knowledge**

| Modern Contraceptive Use | Percent | Number |
|---|---|---|
| Using | 47.8 | 1663 |
| Not Using | 52.2 | 1816 |
| Total | 100.0 | 3479* |

**** = Missing Case (147)***

### 4.4 Reasons for not using modern contraceptive

One might recall from the foregoing delineation about modern contraceptive knowledge and its use that from the total women of reproductive age (15-49), there are 70 percent of which 52 percent of the women of reproductive age do not use modern contraception as a family planning methods. Table 4 that follows presents the percentage distribution of not using modern contraceptive by reasons among married women of reproductive age (15-49) in Bhutan. According to this table, there are 6 major reasons of why they are not using modern contraceptive even though they know

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about modern contraceptive. The first reason for not using modern contraceptive among married women aged 15-49 is that they are not concerned about the use and this accounts to 89 percent of the total non-users. The other reason in which the proportion is very negligible is unavailability of contraception even though they do want to use it as family planning method. Non-use of modern contraception due to this reason accounts to 1 percent. There is 1 percent married women aged 15-49 who do not use modern contraceptive due to religious/moral objection. This might be because Bhutan is a Buddhist country which pervades the use of contraceptive as a birth control as it would mean the deliberating refraining birth of a child considered as gift of God. The other reason for not using modern contraceptive even after having knowledge is due to husband and family objection. The non-use of contraceptive due to this reason is 6 percent. Women are also concerned about the side effects of using modern contraceptive that restrain them from using it. There are 4 percent of married women aged 15-49 who do not use due to the fear of likely consequences of using it. Only 0.1 percent does not use modern contraception because she thinks it is too expensive. This explains in brief why Bhutanese women aged 15-49 do not use modern contraceptive despite having knowledge.

**Table 4.4: Percentage distribution of married women aged 15-49 by reasons of not using modern contraceptive**

| **Not Using Modern Contraceptive** | **Percent** | **Number** |
|---|---|---|
| ***Reasons*** | | |
| Not concerned | 88.6 | 1609 |
| No not available | 0.5 | 9 |
| No religious/moral objection | 1.0 | 23 |
| No husband/family objection | 5.6 | 102 |
| No cause of side effects | 4.0 | 72 |
| No too expensive | 0.1 | 1 |
| Total | 100.0 | 1816 |

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## 4.5 Background characteristics of married women of reproductive age in Bhutan

This sub-section presents an overview of the selected background characteristics of the selected sample population (currently married women aged, 15-49) canvassed at the time of interview. The demographic characteristics include age of women and marital status of women. In socio-economic characteristics three variables viz. level of education, occupation of the women and place of residence are included.

### *4.5.1 Demographic Characteristics of the Women of Reproductive Age in Bhutan*

Table 4.5.1 shows the percentage distribution of currently married women aged 15-49 by selected demographic characteristics. According to this table, there are 19 percent of women aged 15-19, termed as young mother. In the age group 20-34 which is termed as adult mother for the purpose of this study, the percentage distribution of currently married women are 52 percent whereas, in the old age group (35-49), there 29 percent.

The other demographic characteristic selected for this study is marital status of the women. There are 5 main marital statuses of the women and they are married, never-married, separated, divorced and widow. This table shows the distribution of women by marital status. The distribution of women by marital status is highest among married women followed by never-married women and the least being those who separated after marriage. There are 68 percent of women aged 15-49 who are married followed by 27 percent of never-married women in the same age group. Those women who were married once but got divorce legally accounts to 3 percent, but those who got separated after marriage (not legally divorced) accounts to only 1 percent. The women whose husband were expired irrespective whatever the cause of death is accounts to 1 percent of the total women of 3626.

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**Table 4.5.1: Percentage distribution of married women aged 15-49 by selected demographic characteristics**

| **Characteristics** | ***Percent*** | ***Number*** |
|---|---|---|
| ***Age Group of Women*** | | |
| 15-19 | 19.0 | 688 |
| 20-34 | 52.4 | 1899 |
| 35-49 | 28.7 | 1039 |
| Total | 100.0 | 3626 |
| ***Marital Status*** | | |
| Married | 68.1 | 2469 |
| Never married | 27.1 | 984 |
| Divorced | 2.6 | 96 |
| Separated | 0.7 | 27 |
| Widow | 1.4 | 50 |
| Total | 100.0 | 3626 |

### *4.5.2 Socio-economic Characteristics of the Women of Reproductive Age in Bhutan*

Table 4.5.2 presents the distribution of the sample population of currently married women aged 15-49 by selected socio-economic characteristics. The selected socio-economic variables are level of education, occupation of the women and place of residence. The distribution of these variables is presented in this table. It shows that from the sample population of 3626, 11 percent of the currently married women aged 15-49 have attended primary level of education. Those who have attained lower secondary level of education are 8 percent of the total married women of reproductive age (15-49). 12 percent of married women aged 15-49 had attained higher secondary level of education when the survey was conducted. Those who had attained graduate level of education, that is from grade 13-15 are 1 percent and 12 percent of then total sample population have attained other training which includes religious, vocational,

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academic/professional/university. However, there are more than half (55 percent) of the total sample population of women aged 15-49 have not attained any level of education.

The occupation of the married women aged 15-49 had been categorized into agriculture, industry, service, others and who do not work for the purpose of this study. According to the table, it shows that almost half of the total sample populations were not working when the survey was conducted. Among those who were working, 32 percent of the married women aged 15-49 distributed to agriculture and very less working in other category of occupation. Those married women who were working in industry accounts to only 2 percent. There are 14 percent working in the service category of the occupation while 3 percent are working in others category of occupation. 49 percent are not working in any category of the occupation

By place of residence, the percent distribution of married women aged 15-49 are more in urban areas than that of rural areas. Specifically, there are 61 percent of the currently married women distributing to urban areas and only 40 percent distributing to the rural areas. This indicates that approximately 1 out 3 women were residing in the rural areas at the time of interview.

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**Table 4.5.2: Percentage distribution of married women aged 15-49 by selected Socio-economic characteristics**

| **Characteristics** | ***Percent*** | ***Number*** |
|---|---|---|
| ***Level of Education*** | | |
| Primary School | 11.1 | 403 |
| Lower Secondary School | 8.1 | 292 |
| Higher Secondary School | 12.3 | 446 |
| Graduate | 1.2 | 44 |
| Other Trainings | 11.9 | 432 |
| Never Attend School or Training | 55.4 | 2009 |
| Total | 100.0 | 3626 |
| ***Occupation*** | | |
| Agriculture | 32.0 | 1161 |
| Industry | 2.4 | 86 |
| Service | 13.9 | 503 |
| Others | 2.5 | 91 |
| Do Not Work | 49.2 | 1785 |
| Total | 100.0 | 3626 |
| ***Place of Residence*** | | |
| Urban | 60.5 | 2195 |
| Rural | 39.5 | 1431 |
| Total | 100.0 | 3626 |

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### 4.6 Results of Bivariate Analysis

This section delineates the results of bivariate analysis of modern contraceptive use by the sample population (currently married women aged 15-49) with various demographic and socio-economic characteristics that are selected for the purpose of this study. The analysis of the use of modern contraceptive by the married women aged 15-49 and it possible influences by different demographic and socio-economic determinants are done in conjunction with discussion of the findings. The analysis are done in two parts; first, use of modern contraceptive by married women aged 15-49 residing in urban areas by selected demographic and socio-economic determinants and, second, use of modern contraceptive by married women aged 15-49 residing in rural areas by selected demographic and socio-economic determinants. The main purpose of doing it in two parts is to distinguish/or to find out if there is any difference in the influence of modern contraceptive use by selected demographic and socio-economic variables for those married women aged 15-49 residing in rural and urban areas. It has been cited in the foregoing literature review that contraceptive use is usually higher among urban people than among rural people in the same country. Among other things, use may be higher in the urban areas because it is probably less difficult to obtain modern contraceptive urban areas than in rural areas. This is usually true even when there is an organized family planning program, because of the difficulty and cost of supplying services to remote and sparsely settled areas. Other possible reasons for the typically lower level of use in rural areas are that rural people may tend to want larger families and that they are usually less well educated and more firmly rooted in the tradition (United Nations, 1988).

From the total sample size of 3626 (married women of reproductive age) from which 147 cases were missing, 61 percent (2131) distributed in urban areas and 39 percent (1348) in rural areas. One might expect more proportion of women residing in rural areas than in urban areas for which it is otherwise in this study, because, Bhutan is an agrarian country with most of the people inhabiting in rural areas, but the Bhutan Living Standard Survey conducted in 2003 shows that sample household canvassed for urban and rural areas are 2319 and 1688 respectively. Therefore, the distribution of

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sample population in this study is more in urban areas than in rural areas. For its easy comprehension of the analysis, the tables are also presented separately after analysis and discussion are done.

### *4.6.1 Demographic Characteristics and Modern Contraceptive Use Among Married Women Aged 15-49 Residing in Urban Areas*

Table 4.6.1 that follows explains the use of modern contraception by currently married women aged 15-49 residing in urban areas by selected demographic determinants and their associations.

The age of the currently married women aged 15-49 had been categorized as 15-19, 20-34 and 35-49. This categorization of the age is done in context to differentiate women into three category of motherhood. The first group is termed as young mother, second as adult mother and third as old mother. This is done to find the likely differences in the usage of modern contraceptive so as to design appropriate programs and implement in accordance to age. It is not surprising to see from the table that contraceptive use by currently married women aged 15-19 is low compared to other two age categories. There is only 14 percent of the young mother who are using modern contraceptive while 87 percent of them are not using any method of modern contraceptive. The literature review also supports that young women/mother are less likely to use modern contraceptive, because firstly they are less aware of the family planning methods and secondly they want to complete their family size. In the age category 20-34 which is termed as adult mother for this study, it shows that the use of modern contraceptive is quite high. In this table, there are 54 percent of adult mothers (20-34) who are using modern contraceptive irrespective of whatever the methods they use while 46 percent are not using any contraception. In the literature review cited in the foregoing section, it states that generally use of contraceptive is high at this age group mainly because women are very fecund and also they have good knowledge of family planning methods. However, one may marvel at yet more increase in use of modern contraceptive at age 35-49. The table shows that 60 percent of old mother are using modern contraceptive and 41 percent of them are not using modern contraceptive as a family planning method. This might be true as it has been pointed

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out in the literature review which states that, usually, in many countries, contraceptive practice is higher in the older age women of reproductive age. In the context of the recent introduction of contraceptive use in the society, most contraceptive users will be older women or women of high parity. This, in fact, corresponds to the stage of family planning program in Indonesia (Soeradji and Hatmadji, 1980). They had also revealed that the high level of contraceptive use among women in their intermediate age groups inferred in their studies has also been observed in many other countries with recent widespread promotions of family planning programs. Keeping in view of this literature review, this might also be applied in Bhutanese women, because of the efforts made by the ministry of health in availing contraceptive methods and various other family planning campaigns that are organized in the country very recently. Although, this findings do not support the stated hypothesis that adult mother (20-34) are more likely to use modern contraceptive than other two age categories because in Bhutan the use of modern contraceptive increases with increasing reproductive age of the women, yet the age of women is found statistically significant ($p<0.001$) in contraceptive use. This indicates that use of modern contraceptive for married women aged 15-49 in Bhutan is highly influenced by age.

Marital status is often considered as very important factor that affects the use of modern contraceptive by the women of reproductive age. According to findings of this study, it shows that use of modern contraceptive is more among married women than any other marital status of women. The table shows that there are 62 percent of married women aged 15-49 using modern contraceptive and 38 percent of them not using modern contraceptive. Among never-married women of reproductive age, there are 15 percent of them using modern contraceptive and remaining 85percent not using contraceptive. This might also be interpreted as all the women who are never-married might not be having sexual intercourse from 575 of them who know about modern contraceptive. Though, sexual intercourse before marriage is socially restricted in Bhutan, yet it is a fact that many from unmarried-women have sex before marriage. With regard to those women who are divorced, there are 24 percent using modern contraceptive against 76 percent not using contraceptive. Among those women aged 15-49 who are separated, there are 13 percent of them using modern contraceptive

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while 88 percent do not use contraceptive. The use of modern contraceptive as a family planning method is least among those women who are widow. Only 5 percent of them are using modern contraceptive while 95 percent of them do not use contraceptive. It may be concluded that use of modern contraception is greatly influenced by marital status of women. The findings of this study show statistically significant association between marital status and use of modern contraceptive. It is significant at $p<0.001$. The findings also supports the stated hypothesis that married women are more likely to use modern contraception than those never-married, divorced, separated and widow.

**Table 4.6.1: Percentage distribution of modern contraceptive use by married women aged 15-49 residing in urban areas by selected demographic characteristics**

| Characteristics | Contraceptive Use in Urban Area | | | | | |
|---|---|---|---|---|---|---|
| | *Using* | | *Not Using* | | *Total* | |
| ***Age Group of Women*** | ***%*** | ***N*** | ***%*** | ***N*** | ***%*** | ***N*** |
| 15-19 | 13.5 | 52 | 86.5 | 332 | 100 | 384 |
| 20-34 | 53.7 | 656 | 46.3 | 565 | 100 | 1221 |
| 35-49 | 59.9 | 315 | 40.1 | 211 | 100 | 526 |
| Total | 48.0 | 1023 | 52.0 | 1108 | 100 | 2131 |
| Chi-square | 228.485*** | | | | | |
| Degree of freedom | 2 | | | | | |
| ***Marital Status*** | | | | | | |
| Married | 62.2 | 925 | 37.8 | 561 | 100 | 1486 |
| Never Married | 15.0 | 86 | 85 | 489 | 100 | 575 |
| Divorced | 24.4 | 10 | 75.6 | 31 | 100 | 41 |
| Separated | 12.5 | 1 | 87.5 | 7 | 100 | 8 |
| Widow | 4.8 | 1 | 95.2 | 20 | 100 | 21 |
| Total | 48.0 | 1023 | 52.0 | 1108 | 100 | 2131 |
| Chi-square | 401.308*** | | | | | |

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**Table 4.6.1: Percentage distribution of modern contraceptive use by married women aged 15-49 residing in urban areas by selected demographic characteristics (Cont…)**

| Characteristics | Contraceptive Use in Urban Areas | | | | | |
|---|---|---|---|---|---|---|
| | Using | | Not Using | | Total | |
| | % | N | % | N | % | N |
| Degree of freedom | 4 | | | | | |

*Significance level: ***p<0.001*

### *4.6.2 Socio-economic Characteristics and Use of Modern Contraceptive Among Married Women Aged 15-49 Residing in Urban Area*

The table below presents percentage distribution of modern contraceptive use among married women aged 15-49 residing in urban areas by selected socio-economic characteristics. The use of modern contraceptive by level of education, there is not much variation in use of modern contraception among married women aged 15-49. But, the use of modern contraceptive is relatively higher among those women who never attended school or training which is enigmatic to comprehend. Among those married women aged 15-49 residing in urban areas, the use of modern contraceptive is 50 percent by women who had attended primary level of education while non-use accounts to 50 percent. The use of contraceptive is further less among those women having attended lower secondary level of education. 37 percent of them are using contraceptive while remaining 63 percent do not use. Among those women who had attended higher secondary level of education, there are 25 percent using modern contraceptive while 75 percent do not use any type of modern contraceptive. Those who have attended graduate level of education, the use of contraceptive are 34 percent against 66 percent not using modern contraceptive. Although, use of modern contraceptive by the married women aged 15-49, residing in urban areas are relatively low for women having attended lower secondary, higher secondary and graduate level of education, the women who did other type of training tend to use more

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contraceptive. There are 50 percent of married women aged 15-49 who had attended other trainings using modern contraceptive. Among those women who have never attended any level of education, surprisingly they tend to use more contraceptive than those who had attended one or other level of education. Most of the literature review cites that contraceptives are more used by those women who have attended higher level of education, but in Bhutan, it is different. The use of modern contraceptive are more among those who had attended primary level of education and those who had never attended school or trainings. In this case, the stated hypothesis, "women with higher level of education are likely to use more contraceptive than those with lower level of education" is not supported by this study. However, as far as the association between the level of education and use of modern contraceptive are concerned, it is statistically significant at $p<0.001$. This indicates that level of education does influence the use of contraceptive.

In terms of use of modern contraceptive and occupation of the women and their associations of occupation and use, generally, there are not much difference between the use of modern contraceptive and occupation of the women who are residing in urban areas. The use is more among those married women whose occupation is agriculture. 61 percent of them use modern contraceptive while 29 percent do not use. Those women who work in industry, 44 percent use modern contraceptive and 56 percent do not use contraceptive. Among women working in service sector, there are 49 percent of them using modern contraceptive and 51 percent not using contraceptive. Married women aged 15-49 working in other type of occupation besides those that are stated above, there are 51 percent using modern contraceptive while 49 percent do not use contraceptive. Although, women who do not work are usually less likely to use contraceptive, yet one may note that 47 percent of them are using modern contraceptive and remaining 43 percent are not using contraceptive. Even in the occupation of the women and use of modern contraceptive, the findings do not support the hypothesis that those women who works in agriculture are less likely to use contraceptive than those working in other category of occupation. Nonetheless, the result does infer statistically significant association between the occupation of the women and use of modern contraceptive.

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**Table 4.6.2: Percentage distribution of modern contraceptive use by married women aged 15-49 residing in urban areas by selected socio-economic characteristics**

| Characteristics | Contraceptive Use in Urban Area | | | | | |
|---|---|---|---|---|---|---|
| | *Using* | | *Not Using* | | *Total* | |
| ***Level of education*** | ***%*** | ***N*** | ***%*** | ***N*** | ***%*** | ***N*** |
| Primary School | 49.8 | 132 | 50.2 | 133 | 100 | 265 |
| Lower Secondary School | 36.9 | 73 | 63.1 | 125 | 100 | 198 |
| Higher Secondary School | 25.4 | 91 | 74.6 | 267 | 100 | 358 |
| Graduate | 34.2 | 13 | 65.8 | 25 | 100 | 38 |
| Other Trainings | 49.8 | 162 | 50.2 | 163 | 100 | 325 |
| Never Attended School or Training | 58.3 | 552 | 41.7 | 395 | 100 | 947 |
| Total | 48.0 | 1023 | 52.0 | 1108 | 100 | 2131 |
| Chi-square | 126.818*** | | | | | |
| Degree of freedom | 5 | | | | | |
| ***Occupation*** | | | | | | |
| Agriculture | 60.6 | 60 | 39.4 | 39 | 100 | 99 |
| Industry | 43.9 | 36 | 56.1 | 46 | 100 | 82 |
| Service | 49.0 | 216 | 51.0 | 225 | 100 | 441 |
| Others | 51.3 | 40 | 48.7 | 38 | 100 | 78 |
| Do Not Work | 46.9 | 671 | 53.1 | 760 | 100 | 1431 |
| Total | 48 | 1023 | 52.0 | 1108 | 100 | 2131 |
| Chi-square | 8.067 | | | | | |
| Degree of freedom | 4 | | | | | |

*Significance level:***p<0.001*

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### *4.6.3 Demographic Characteristics and Use of Modern Contraceptive Among Married Women Aged 15-49 Residing in Rural Areas*

In this section tries to analyze the use of modern contraceptive among married women aged 15-49 residing in rural areas by selected demographic and socio-economic characteristics. Table 9 presents percentage distribution of modern contraceptive use by married women aged 15-49 residing rural areas by selected demographic characteristics. With regard to the use of modern contraceptive by three broad age; 15-19, 20-34 and 35-49, the use of modern contraceptive is still lower even in rural areas among young mother (15-19) and then it increases with age. Among married women aged 15-19, there are 21 percent of then using modern contraceptive while 79 percent are not using contraceptive. In age group 20-34, 51 percent are using modern contraceptive and 49 percent are not using contraceptive. Those in age group 35-49, there are 57 percent of them using modern contraceptive and 43 percent not using modern contraception. The use of contraceptive among women aged 15-49 residing in rural areas is not so different than the use of modern contraceptive among married women aged 15-49 residing in urban areas in Bhutan. In some literature, it says that the use of contraceptive by age takes an inverted “U-shaped” curve while others say use of modern contraceptive increases with age. In this study the use of contraceptive by age increases with age. This indicates that in Bhutan, the knowledge of contraceptive is low at young age and then goes on increasing with increasing age which also leads to more use of contraceptive. Usually, in many countries, contraceptive practice is higher in the older age women of reproductive age. In the context of the recent introduction of contraceptive use in the society, most contraceptive users will be older women or women of high parity. This, in fact, corresponds to the stage of family planning program in Indonesia (Soeradji and Hatmadji, 1980). They had also revealed that the high level of contraceptive use among women in their intermediate age groups inferred in their studies has also been observed in many other countries with recent widespread promotions of family planning programs. The result shows positive association of age and modern contraceptive use by married women of reproductive in Bhutan. It is statistically significant at $p<0.001$

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**Table 4.6.3: Percentage distribution of modern contraceptive use by married women aged 15-49 residing in rural areas by selected demographic characteristics**

| Characteristics | Contraceptive Use in Rural Area | | | | | |
|---|---|---|---|---|---|---|
| | *Using* | | *Not Using* | | *Total* | |
| ***Age Group of Women*** | ***%*** | ***N*** | ***%*** | ***N*** | ***%*** | ***N*** |
| 15-19 | 20.6 | 51 | 79.4 | 197 | 100 | 248 |
| 20-34 | 50.6 | 308 | 49.4 | 301 | 100 | 609 |
| 35-49 | 57.2 | 281 | 42.8 | 210 | 100 | 491 |
| Total | 47.5 | 640 | 52.5 | 708 | 100 | 1348 |
| Chi-square | 93.106*** | | | | | |
| Degree of freedom | 2 | | | | | |
| **Marital Status** | | | | | | |
| Married | 60.6 | 556 | 39.4 | 362 | 100 | 918 |
| Never Married | 16.6 | 55 | 83.4 | 277 | 100 | 332 |
| Divorced | 33.3 | 17 | 66.7 | 34 | 100 | 51 |
| Separated | 36.8 | 7 | 63.2 | 12 | 100 | 19 |
| Widow | 17.9 | 5 | 82.1 | 23 | 100 | 28 |
| Total | 47.5 | 640 | 52.5 | 708 | 100 | 1348 |
| Chi-square | 205.089*** | | | | | |
| Degree of freedom | 4 | | | | | |

*Significance level:***p<0.001*

### *4.6.4: Socio-economic Characteristics and Modern Contraceptive Use Among Married Women Aged 15-49 Residing in Rural Areas*

Table 4.6.3 delineates the percentage distribution of modern contraceptive use among married women aged 15-49 residing in rural areas by selected socio-economic characteristics. Use of modern contraceptives by level of education is highest among

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married women who had attended other trainings like vocational, religious, university, professional and etc. while not using contraceptive accounts to which is 54 percent of them using modern contraceptive are 46 percent. The next higher use of contraceptive is by those women who did not attend any level of education or trainings. Specifically, there are 52 percent among those women who had not attended any level of education or trainings which means 48 percent of them do not use modern contraceptive as a family planning method. Among married women aged 15-49 who had attended primary level of education, there are 38 percent using and 62 percent of them not using modern contraceptive. It is surprising to note from the table that with an increase in level of education, the use of modern contraceptive decreases. Women who had attended lower secondary level of education, only 22 percent are using contraception and remaining 78 percent are not using it. The modern contraceptive use is till low among married women who had attended higher secondary level of education. The use accounts to 20 percent among those women having attended higher level of education and non-use to 80 percent. In most of the literature review, it states use of modern is found high among those women with higher level of education. In one of the literature review, it states that better educated the women are, the more likely they are in practicing contraception. In this regard, S.Ali et al., (2004) in the Prevalence and Factors associated with practice of modern Contraceptive Methods among currently Married Women in District Naushahro Feroze had shown that the better-educated women are more likely to practice contraception. Nonetheless, in their study they did not find significant association with level of education and practice of contraceptive methods. They suggested that the low status of women is possibly a factor in the limited use of family planning methods in Pakistan. Though, this study does not support the stated hypothesis that women with high level of education are likely to use more contraceptive than those with low level of education, yet the findings conspicuously show statistically significant relationship between level of education and use of modern contraception. In other words, it means use of modern contraception is greatly influenced by level of education that the women had attended.

With regard to occupation of the women and use of contraception, those married women aged 15-49 working in service sector use more contraceptive followed by

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women working in agriculture sector. Among women working in this occupation, 66 percent of them are using modern contraceptive and 34 percent are not using it. The other relatively high use of modern contraceptive by the women of reproductive age according to this study is those working in agriculture. 52 percent from the total women working in this occupation are using modern contraceptive and remaining 48 percent are not using it. Among women who work in other category of occupation, there are 46 percent of them using modern contraception and 56 percent not using it. Although, literature review on use of modern contraception infers that the use of contraceptive is high among those who work than those who do not work, still according to this study, there is not much difference in use of modern contraceptive among women working in different occupation. Notwithstanding this, occupation and use of contraceptive are strongly significant at $p<0.001$, showing the use of modern contraceptive is influenced by occupation of the women.

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**Table 4.6.4: Percentage distribution of modern contraceptive use by married women aged 15-49 residing in rural areas by selected socio-economic characteristics**

| Characteristics | Contraceptive Use in Rural Area | | | | | |
|---|---|---|---|---|---|---|
| | *Using* | | *Not Using* | | *Total* | |
| ***Level Of Education*** | ***%*** | ***N*** | ***%*** | ***N*** | ***%*** | ***N*** |
| Primary School | 38.4 | 48 | 61.6 | 77 | 100 | 125 |
| Lower Secondary School | 21.8 | 17 | 78.2 | 61 | 100 | 78 |
| Higher Secondary School | 20.0 | 12 | 80.0 | 48 | 100 | 60 |
| Graduated | 0.0 | 0 | 100.0 | 2 | 100 | 2 |
| Other Trainings | 54.0 | 47 | 46.0 | 40 | 100 | 87 |
| Never Attend School or Training | 51.8 | 516 | 48.2 | 480 | 100 | 996 |
| Total | 47.5 | 640 | 52.5 | 708 | 100 | 1348 |
| Chi-square | 53.719*** | | | | | |
| Degree of freedom | 5 | | | | | |
| ***Occupation*** | | | | | | |
| Agriculture | 51.7 | 521 | 48.3 | 486 | 100 | 1007 |
| Industry | 0.0 | 0 | 100.0 | 1 | 100 | 1 |
| Service | 65.9 | 27 | 34.1 | 14 | 100 | 41 |
| Others | 45.5 | 5 | 54.5 | 6 | 100 | 11 |
| Do Not Work | 30.2 | 87 | 69.8 | 201 | 100 | 288 |
| Total | 47.5 | 640 | 52.5 | 708 | 100 | 1348 |
| Chi-square | 48.247*** | | | | | |
| Degree of freedom | 4 | | | | | |

*Significance level:***p<0.001*

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# CHAPTER V
# CONCLUSION AND RECOMMENDATIONS

## 5.1 Conclusion

The main objective of this study is to explore and investigate how demographic and socio-economic factors are linked with modern contraceptive use by married women of reproductive age (15-49) in Bhutan. Bhutan has one of the highest fertility, maternal mortality and infant mortality rates coupled by extremely low contraceptive prevalence rate among Southeast Asian countries. There might be various reasons for such demographic situations in the country. The possible attributable characteristics of such demographic scenario might be that she was an isolated country for many centuries curtailing access to rest of the world with late embarkation modern development and hence the socio-economic development is still at early stage. For the purpose of this study, secondary data from Bhutan Living Standard Survey conducted in 2003 is used. The sample size chosen for this study is 3,626 married women of reproductive age (15-49).

For this study, five variables had been selected; three from socio-economic determinants and two from demographic determinants. Under socio-economic, the variables chosen are level of education, occupation and place of residence, while, age group and marital status were selected as demographic determinants. These five demographic and socio-economic determinants (independent variables) of the married women aged 15-49 are used to examine their relationships/associations in use of modern contraception (dependent variable) by married women aged 15-49. In order to find out their associations, descriptive statistics and bivariate analysis are used to determine the influence of independent variables on dependent variable. Descriptive statistics is used to find out the general distribution of selected variables and use of modern contraceptive, while, bivariate analysis is used to investigate associations between and among the variables in use of modern contraception.

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The findings suggest that the use of modern contraception by age group of married women (15-49) increases with age. Married women residing in both urban and rural areas use less modern contraceptive at young age (15-19) and then the use increases among married adult women (20-34) and old age mother (35-49). The result shows that the use of modern contraception is comparatively high for those married women aged 15-49 residing in rural areas (21 percent) than those in urban areas (14 percent). However, the use is higher for married women residing in urban areas in the age group of 20-34 and 35-49 than that of married women residing in rural areas. In both the case, age group of married women and modern contraception use are statistically significant at $p<0.001$, which shows positive influence of age on use of contraception. With regard to marital status and use of contraception, in urban and rural areas, those married women in urban areas use relatively more contraception (62 percent) than that of married women in rural areas (61 percent). But, the use of modern contraception is higher among married women residing in rural areas than those residing in urban areas in rest of the marital status. This might be true in Bhutan, because women in rural areas are less educated and hence despite knowing the methods contraception, they might still lack knowledge about the advantage of family size. Therefore, they may not be very conscious of the consequences large family size which in turn leads them to have unprotected sex. Marital status of the women is also found highly associated in use of modern contraception. It is statistically significant at $p<0.001$.

The findings with regard to use of modern contraception and socio-economic determinants by married women of reproductive age inhabiting in urban and rural areas shows that the use of contraception is generally higher among married women residing in urban areas than in rural areas. By level of education and use of modern contraception, those women who had attended primary to graduate level of education, the use is more in urban areas than that of married women residing in rural areas. However, the use is more among married women residing in rural areas than married women in urban areas who had attended other trainings which is enigmatic to comprehend. In both the cases, the use of modern contraception and level of education is statistically significant at $p<0.001$. In occupation and use of modern contraception

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among married women of reproductive age (15-49) by place of residence, the findings show that the use of contraception is generally higher among married women residing in urban areas than their counterpart in rural areas. However, occupation of the married women residing urban areas and contraception is not found to be statistically associated. This explains the use of modern contraception among married women inhabiting in urban areas is not influenced by their occupation. On the other hand, for those married women of reproductive age (15-49) residing in rural areas, there is positive association of modern contraception use and their occupation notwithstanding their low use when compared to married women inhabiting in urban areas.

Finally, the selected demographic and socio-economic variables of married women aged 15-49 in Bhutan has positive association with modern contraceptive use for both residing in urban and rural areas, the occupation of married women inhabiting in urban areas.

**5.2 Recommendations**

The major findings of this study reveal positive association between modern contraceptive use and selected socio-economic and demographic determinants like age of married women, marital status, level of education, occupation of women and place of residence. In order to improve and increase the knowledge and use of modern contraceptive by married women of reproductive age (15-49) in Bhutan, following are few recommendations based on this study:

1. The propaganda of family planning programs for young mothers (15-19) needs to be developed. One of these can be promoting interpersonal communication among young couples about the necessity and advantages of family planning. This must start from grass root level of younger generations.
2. Family planning as a separate subject needs to be developed in the ministry of education and should be taught lower/higher secondary level of education. This would enhance the knowledge of family planning methods and ultimately in its use among women with different level of education.

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3. To increase the use of modern contraception among married women working in different occupation, information, education and communication (IEC) about family planning programs must be implemented through various media like television, radio, newspapers, posters, etc..
4. Family planning campaigns in the form of drama relating to advantages and disadvantages of large and small family should be organized in particular area which lags in knowledge as well as in use of modern contraception. This might help increase in knowledge and use of modern contraception in a particular area and also in relaying the knowledge gained to other area.
5. There should be separate family program implemented for men irrespective of whether or not they are married. This would help in increasing use of modern contraception among couples and also among those who are never-married, separated, divorced and widow.

**5.3 Recommendations for Future Research**

Since this study is based on secondary data, there might be some loss of information regarding contraceptive use and different independent variables. In this connection, following points are recommended to incorporate in future research:

1. Separate survey should be conducted to find out the association between different factors and contraceptive use.
2. Mass media exposure to family planning is important determinant for the contraceptive use. Due to inadequate information in this study, this variable could be considered. For future research, the consideration of mass media exposure is highly recommended.
3. The availability and accessibility of contraceptive methods also needs to be taken into consideration, since, this factor might have substantial effects on contraceptive use.

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# REFERENCES

Ali S, Rozi. S. and Mahmood. M.A. (2004). “Prevalence and Factors associated with practice of modern Contraceptive Methods among currently Married Women in Distirct Naushahro Feroze.

Department of Community Health Sciences and Public Health, Aga Khan University, Karachi (Electronic Journal)

Bhende A. et al. (1991). “Determinants of contraceptive method-choice in an industrial city of India”.

Blake, J. 1965. “Demographic Science and the redirection of population policy.” In M.C. Sheps and J. C. Ridley (eds.) Public Health and Population Change.” Pittsburgh: University of Pittsburgh Press.

Burgard S. 2004. Factors Associated with Contraceptive Use in Late- and Post-apartheid South Africa. Electronic Journal.

Chacko E. (2001). Women’s Use of Contraception in Rural India: a village-level study. Health and Place; 7(7): 197-208.

Chamratrithirong A. et al. (1986). “Determinants of Contraceptive Method-Choice in Thailand.” IPSR publication No. 98. Institute for Population and Social Research, Mahidol University.

Chamratrithirong A, Knodel J and Debavalya N. (1987). “Thailand’s Reproductive Revolution”, Rapid Fertility Decline in a Third World. IPSR, Mahidol University, Thailand.

Chamratrithirong A. et al. (1997). “The Needs For Another Revolution After The Reproductive Revolution In Thailand”. Journal of Population and Social Studies, Vol.7, No.1. pp1-20.

Copyright by Mahidol University

Cochrane, S.H. 1979. “Fertility and Education; What Do We Really Know?’ In Donald J. Hernandez (ed), Fertility Reduction Policies and Poverty in Third World Countries: Ethical Issues. Studies in Family Planning Vol 16 No. 2 Mar/Apr 1985.

Federal Office of Statistics. (1992). Nigeria Demographic and Health Survey, 1990. Federal Republic of Nigeria.

Guilkey, David K. and Susan Jayne (1997). Fertility Transition in Zimbabwe: Determinants of Contraceptive Use and Method Choice. Population Studies – Vol. 12, No. 3: 1986

Dharrmalingam, A. and Morgan P. (1996). Women’s Work, Autonomy and Birth Control: Evidence from two South Indian villages. Population Studies, 187-201, Vol. 50, No. 2.

Khan, M.E. and C.C.S. Prasad. !985. “A Comparison of 1970 and 1980 Survey Findings on Family Planning in India.” Studies in Family Planning Vol 16 No. 6 Nov/Dec 1985.

Leoprapai, B. and V. Thongthai. 1989. “Contraceptive Practices of Thai Women, 1987-Results of the Study on Determinants and Consequences of Contraceptive Use Patterns in Thailand. Institute for Population and Social Research, Mahidol University.

Malhotra A. and S.Thapa (1991). “Determinants of contraceptive method choice in Sri Lanka: An update of a 1987 survey”. Asia Pacific Population Journal. Vol.6, No.3 pp.25-40.

Martin, K. and Z. Wu. (2000). “Determinants of contraceptive method choice in Sri Lanka: An update of 1987 survey”. Asia Pacific Population Journal. Vol. 6, No. 3. Pp. 25-40.

Mitra S.N., Ahmed Al-Sabir, Ann R. Cross, and Kanta Jamil (1997). Bangladesh Demographic and Health Survey, 1996-’97. Calverton. Maryland and Dhaka, Bangladesh; National Institute of Popualtion Research and Training (NIPORT), Mitra and Associates, and MEASURE DHS+Macro International Inc.

Copyright by Mahidol University

Molyneaux, John W., Charles E. Lerman, S.P. Pandi, and Trinso Soni. (1990). Correlates of Contraceptive Method Choice in Indonesia and Sri Lanka. Population Studies based on 1987 Sri Lanka Demographic and Health Survey and the National Indonesia Contraceptive Prevalence Survey. The Population Council, New York, USA.

Ntozi, J. P.M., and J. Kabera. 1991. “Family Planning in Rural Uganda: Knowledge and Use of Modern and Traditional Methods in Ankole.” Studies in Family Planning Vol 22 No. 2 Mar/Apr 1991.

Narsingh, D. (1997). Factors Affecting Modern Contraceptive Use in Nepal. M.A. Thesis. Institute for Population and Social Research, Mahidol University, Thailand.

Oni, A. G. and J.MaCarthy. 1990. “Contraceptive Knowledge and Practices in Illorin Nigeria: 1983-88.” Studies in Family Planning Vol 21 No.2 Mar/Apr 1990.

Rahman, Luftur. (2000). Women’s Social Participation and Contraceptive Use in Bangladesh. Unpublished Thesis. Institute for Population and Social Research, Mahidol University, Thailand.

Peng, Tey Nai and Idris Abdurraahaman. (1980). Factors Affecting ontraceptive Use in Pennusular Malaysia. Asian Population Studies Series, No. 49. ESCAP, United Nations, 1980.

Population Report. (1985). The John Hopkins University. Population Series, 1985.

Regmi, Gokarna. (1980). Differentials in Contraceptives Knowledge in Nepal, in Multivariate Analysis of World Fertility Survey Data for Selected ESCAP Countires. Asian Population Studies Series No. 49, ESCAP, United Nations, 1980.

Samijo MS, Weller B, Sly DF. (1991). The Characteristics of Private Vs. Public Sector Contraceptive Users in Indonesia. The Study of Population Working Paper No. WPS 91-82. Tallahassee, Florida, Florida States University, College of Social Science.

Copyright by Mahidol University

Shapiro D. and Tambashe O. (1994). The Impact of Women's Employment and Education on Contraceptive Use and Abortion in Kinshasa, Zaire. Studies in Family Planning, Vol. 25 (2): 96-100

Soeradji Budi, Sri Harijati Hatmadji. (1980). Contraceptive Use in Java-Bali: A Multivariate Analysis of the Determinants of Contraceptive Use. Asian Population Series No. 49. ESCAP, United Nations, 1980.

T. Jayanti Man. 1987. "Effects of Family Planning Availability and Accessibility on Contraceptive Use in Nepal". Studies in Family Planning, Vol. 18, No. 1. Pp. 49-56.

United Nations. (1988). Case Studies in Population Policy: Nigeria. Department of International Economic and Social Affairs, Population policy Paper, No.16, New York: United Nations.

United Nations. 1981. Variations in the Incidence of Knowledge and Use of Contraception: A Comparative Analysis of World Fertility Survey Results for Twenty Developing Countries. New York: United Nations.

Varul, B. Varul, F. Diker, J. and Yucesoy, I. 1999. "Factors affecting contraceptive use and behavior in Kocaeli, Turkey." Department of Obstetrics and Gynaecology, School of Medicine, Kocaeli University, Kocaeli, Turkey ( Electronic Journal.)

Wai, Khin-Thet. (1995). "Determinants of Contraceptive Method Choice, India". Asia Pacific Population Policy Journal Vol. 2, No. 2, pp 45-66.

Warren, Charles W., J. Timothy Johnson, Gugulethu Gule, Ephraim Hlophes and Daniel Kraushaars. (1992). The Determinants of Fertility in Swaziland. Population Studies-A Journal of Demography; Vol.46, No.2, March 1992

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# BIOGRAPHY

| | |
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