EFFECTS OF CONTRACEPTION KNOWLEDGE AND CHILDBEARING MOTIVATION ON THE CONTRACEPTIVE METHOD CHOICE OF MARRIED WOMEN IN TAJIKISTAN

FARRUKH TOIROV

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS (POPULATION AND REPRODUCTIVE HEALTH RESEARCH)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY
2004

ISBN 974-04-5140-3

Thesis
entitled

EFFECTS OF CONTRACEPTION KNOWLEDGE AND CHILDBEARING MOTIVATION ON THE CONTRACEPTIVE METHOD CHOICE OF MARRIED WOMEN IN TAJIKISTAN

…….
Mr. Farrukh Toirov
Candidate

…….
Assoc. Prof. Philip Guest, Ph.D.
Major Advisor

…….
Assoc. Prof. Uraiwan Kanungsukkasem, Ph.D.
Co-Advisor

……
Assoc. Prof. Rassmidara Hoonsawat, Ph.D.
Dean
Faculty of Graduate Studies

……..
Assoc. Prof. Amara Soonthorndhada, Ph.D.
Chair
Master of Arts Programme in Population and Reproductive Health Research
Institute for Population and Social Research

Thesis
entitled

EFFECTS OF CONTRACEPTION KNOWLEDGE AND CHILDBEARING MOTIVATION ON THE CONTRACEPTIVE METHOD CHOICE OF MARRIED WOMEN IN TAJIKISTAN

was submitted to the Faculty of Graduate Studies, Mahidol University
for the Degree of Masters of Arts
(Population and Reproductive Health Research)
on
August 17, 2004

…….
Mr. Farrukh Toirov
Candidate

…….
Assoc. Prof. Philip Guest, Ph.D.
Chair

…….
Assoc. Prof. Uraiwan Kanungsukkasem, Ph.D.
Member

…….
Mr. Bhakta Gubhaju, Ph.D.
Member

……
Assoc. Prof. Rassmidara Hoonsawat, Ph.D.
Dean
Faculty of Graduate Studies
Mahidol University

……..
Assoc. Prof. Bencha Yoddumnern-Attig, Ph.D.
Director
Institute for Population and Social Research
Mahidol University

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to major advisor Dr. Philip Guest whose advises and support made possible accomplishment of this work. His clear guidelines were received from very beginning of the process and his inputs were always of high value both in terms of giving direction and making sense of the findings.

In addition to his unique scientific advisory skills Dr. Philip Guest also has a comprehensive working experience. It was not only area of science that I was asking him for advice but also he was supporting me on making critical decisions on the personal development issues. I am really proud of being his advisee and hope he could remain my life advisor forever.

Many thanks to Dr. Uraiwan Kanungsukkasem – my co-advisor for her critical review of the work what lead to the better polishing and clearer language expressions used in a paper. I am also grateful to her for long discussions on Monitoring and Evaluation issues what enhanced my knowledge on the subject.

Special thanks to Dr. Amara Soonthorndhada for her wonderful personality, individual cooperation and overall organization of the program. Many thanks to all other lecturers, program organizers and support staff. It was their joint effort what made a year not only learning but also interesting and exciting process for us.

Last but not least my gratitude to the UNFPA Tajikistan for the scholarship opportunity and obviously it wouldn't be possible to attend program without their support. It was the first time UNFPA Tajikistan provided scholarship opportunities for Tajikistan citizens and I hope this good initiative will be continued and that capable candidates could obtain good quality education.

Farrukh Toirov

EFFECTS OF CONTRACEPTION KNOWLEDGE AND CHILDBEARING MOTIVATION ON THE CONTRACEPTIVE METHOD CHOICE OF MARRIED WOMEN IN TAJIKISTAN

FARRUKH TOIROV 4638496 PRRH/M

M.A. (POPULATION AND REPRODUCTIVE HEALTH RESEARCH)

THESIS ADVISORS: PHILIP GUEST, Ph.D., URAIWAN KANUNGSUKKASEM, Ph.D.

ABSTRACT

The objectives of this study are to investigate the effects of contraceptive knowledge and childbearing motivation on contraceptive method choice (including nonuse) of married women in Tajikistan and to explore the socio-demographic factors affecting married women's contraceptive method choice through their knowledge on contraceptives and their childbearing motivation. Data from the Tajikistan Demographic and Health Survey 2002 are used, with a total of 2,008 married women of reproductive age selected for this study.

The results show that the pattern of contraception method choice varies little by ethnicity, rural/urban residence and employment. The two major ethnic groups residing in the country, Tajik and Uzbek, have only small differences in their use of contraception and this is probably due to the cultural similarities, religion and lifestyle in shared communities. Rural urban residence and employment status could not significantly predict method choice most likely because of the dominance of the long-term methods, particularly the IUD, which are widely available in both rural and urban areas. Women's education level is generally high in Tajikistan and their knowledge of the methods is also high, but there was found to be a very small number of women who switched between various methods. A single method can not meet the requirements of every woman and the promotion of only one method might stimulate women who are not satisfied with it to seek abortion as a means of family planning. The geographic division was found to be a strong predictor of method choice. Compared to other areas, women in Khatlon province were found to have the lowest level of using either long-term or temporary contraceptive methods. This highlights a disturbing situation in Khatlon in terms of family planning that requires a targeted approach by the family planning program. The overall results of multivariate analyses suggest that most of the effects of the background variables on method choice operate through mechanisms other than childbearing motivation and contraceptive knowledge.

KEY WORDS: CONTRACEPTION / CHILDBEARING MOTIVATION / CONTRACEPTION KNOWLEDGE / TAJIKISTAN

55 pp. ISBN 974-04-5140-3

CONTENTS

	Page
ACKNOWLEDGEMENT	**iii**
ABSTRACT	**iv**
LIST OF TABLES	**vii**
LIST OF ABBREVIATIONS	**viii**
CHAPTER 1 INTRODUCTION	1
1.1 Research Problem	2
1.2 Rationale behind the problem	3
1.3 Objectives	4
1.4 Research Questions	5
CHAPTER 2 LITERATURE REVIEW	6
2.1 Contraceptive method choice	6
2.1.1 Determinants of contraceptive method choice	6
2.1.2 Availability and accessibility of contraceptives	8
2.1.3 Education, contraceptive knowledge and the method choice	8
2.1.4 Previous experience of contraceptive use	10
2.1.5 Previous experience of abortion	10
2.1.6 Childbearing motivation	11
2.1.7 Socio-demographic factors	13
2.1.7.1 Age	13
2.1.7.2 Rural/Urban Residence	14
2.1.7.3 Regional Variations	15
2.1.7.4 Religion	15
2.1.7.5 Ethnicity	16
2.1.7.6 Employment	16
2.2 Conceptual Framework	18
2.3 Hypotheses	19
CHAPTER 3 RESEARCH METHODOLOGY	20
3.1 Source of Data	20
3.2 Sampling Size and Design	20
3.3 Operationalization of Variables	21
3.3.1 Background Variables	21
3.3.2 Intervening Variables	21
3.3.3 Dependent Variable	22
3.4 Study Limitations	22

CONTENTS (cont.)

CHAPTER 4 RESULTS AND DISCUSSION 24
4.1 Univariate analysis 24
4.2 Bivariate analyses 26
4.3 Multivariate analyses 37

CHAPTER 5 CONCLUSION AND RECOMMENDATIONS 45
5.1 Conclusion 45
5.2 Recommendations 46

BIBLIOGRAPHY 48
APPENDIX 52
BIOGRAPHY 55

LIST OF TABLES

Table 4.1 Percentage distribution of variables used in the analysis

Table 4.2 Percentage distribution of contraceptive methods choice by selected socio-economic characteristics

Table 4.3 Percentage distribution of contraceptive methods choice by childbearing motivation and number of methods known

Table 4.4 Percentage distribution of childbearing motivation and socio-demographic variables

Table 4.5 Percentage distribution of number of contraceptive methods known and selected background variable

Table 4.6 Multinomial logistic regression odds ratios for contraceptive method choice

Table 4.7 Chi-Square test of Multinomial logistic regression model

LIST OF ABBREVIATIONS

CPR	– Contraceptive Prevalence Rate
DHS	– Demographic and Health Survey
DRD	– Direct Rule Districts
GBAO	– Gorno-Badakhshan Autonomous Oblast
INGO	– International Non-Government Organization
IOM	– International Organization for Migration
IUD	– Intra Uterine Device
MoH	– Ministry of Health
NGO	– Non-Government Organization
NHDR	– National Human Development Report
RT	– Republic of Tajikistan
STI	– Sexually Transmitted Infection
TFR	– Total Fertility Rate
UN	– United Nations
UNDP	– United Nations Development Programme
USAID	– United States Agency for International Development

CHAPTER 1

INTRODUCTION

Contraceptive use has become more common in developing countries and much of this increase has been in the form of modern methods of fertility control (UNFPA, 2000). These methods include voluntary sterilization, oral contraceptives, intrauterine devices (IUD), condoms, injectables and vaginal methods. The use of these methods has grown more than the use of traditional methods, such as periodic abstinence (rhythm), withdrawal and others traditional methods. Modern contraceptive methods are generally more effective in preventing pregnancy than are traditional methods (Trussell, 1987). The increased use of effective family planning methods is the primary cause of the dramatic fertility declines observed in many developing countries (Abernethy, 2002).

Recent data from the Tajikistan DHS show that awareness of modern contraceptive methods is very high, especially among married women (DHS, 2002). However, the contraceptive prevalence rate (CPR) was only 31% in 1999 and UNFPA listed it as one of the major issues of reproductive health concern for the country (UNFPA, 1999). By the year 2003, CPR slightly increased in the country, but still it constitutes only 34 percent of married women (UNDP, 2003). Although knowledge of effective contraceptive methods is widespread among women, the proportion practicing contraception remains low. In addition, reliance on traditional methods, such as withdrawal and calendar method is, based on the DHS results, relatively high.

The combination of these factors, contribute to the high fertility in Tajikistan. DHS data suggest that the TFR (Total Fertility Rate) is equal to 3.9 children per women as of the year 2002, which is contributing to the fast population growth and it is one of the main concerns of both the government and family planning program in Tajikistan (NHDR 2003).

Barriers to the use of modern contraceptive methods and factors influencing women's contraceptive choices need further investigation in the context of Tajikistan.

Investigating, evaluating and appropriately addressing those underlying factors will better equip the government family planning program with the knowledge and lead to achievement of better results on promoting modern contraceptive use and controlling population growth in the country.

This research will investigate socio-demographic factors influencing married women decision-making process related to contraceptive method choice, including non-use of contraception as a choice. The research will focus on the intervening mechanisms of contraceptive knowledge and childbearing motivation. Data used in this research comes from the Tajikistan DHS 2002 and the analysis will utilize quantitative methods. Due to data limitations, this research cannot undertake qualitative analyses, which would help to increase our understanding of method choice. The research is focused only on married women, because in the context of Tajikistan, this cohort is the most sexually active and exposed to the risk of pregnancy, thus in a greater need for contraception compared to those who are unmarried. Focusing on this particular population will lead to a better understanding of the dynamics of contraceptive methods choice in Tajikistan.

1.1 Research Problem

Despite the overall high knowledge of women about modern contraceptive methods, contraceptive use is relatively low in Tajikistan. According to the data from DHS 2002, awareness of women in reproductive ages of at least one modern contraceptive method is as high as 89.1 percent, whereas for married accounts it is 96.7 percent. The current use of modern contraceptives is only 26.1 percent among married women and only 0.2 and 0.8 percent of women gave unavailability and high price respectively as the reason for not using contraception (DHS, 2002).

Married women's reliance on traditional methods is relatively high and two methods are the most used namely withdrawal and the calendar method. Both methods are not very effective and have high failure rates of 23 to 28 percent respectively (Nalini, 2001).

The overall fertility level is slowly declining in the country, but still women in Tajikistan can expect to have almost 4 children during the course of their reproductive years (DHS, 2002). The same number has been found as the average ideal number of

children reported by married women (DHS, 2002), which indicates their tendency towards having large families. It is logical that if the desired number of children has not been achieved women's motivation towards childbearing will increase and contraception desire will reduce. As a result of the high fertility, annual population growth was reported as 1.9 percent (NHDR 2003) and compared to other countries, where family planning programs are more successful, it can be considered as high.

In addition, the use of abortion as a means of fertility control is relatively high in Tajikistan. Before the 1980s, the population of the country mostly relied on traditional contraceptive methods and abortion due to the lack of awareness of modern methods, limited access, absence of family planning programs and other factors (DHS, 2002). This has changed a little during recent years, when the Ministry of Health of Tajikistan introduced a family planning program through the network of health facilities throughout the country (DHS, 2002). However, a UNFPA Rapid Assessment of the current reproductive system in Tajikistan concluded that abortion is a widely used means of limiting births, accounting for 144.5 cases per 1000 live births (UNFPA, 2002). Reliance on traditional methods in the past was reported by 11.2 percent of married women and even current use of traditional methods was found at 5.5 percent out of 30.9 percent of any method users (DHS, 2002).

High fertility, a low level of modern contraceptive use, reliance on traditional methods and abortion as fertility control methods, make modern contraceptive use promotion a challenging area for the family planning program in Tajikistan. In order to understand existing barriers to modern contraceptive methods use, it is important to investigate women contraceptive method choice or nonuse by considering their knowledge of the methods and childbearing motivation. This type of research has not yet been undertaken in Tajikistan.

1.2 Rationale behind the problem

The underlying causes of low contraceptive use need further investigation and exploration in order to be better understood and appropriately addressed by the family planning programs. With its implementation only during recent years, the family planning program is relatively new in Tajikistan (DHS, 2002). High levels of knowledge of modern contraceptives may partly be explained as a result of the family

planning program. However, the level on one of the main impact indicators of family planning programs defined by USAID (USAID, 1999) - total fertility rate (TFR) in Tajikistan is 3.9 children per women (DHS, 2002). It significantly exceeds the TFR value of 2.2 children, at which point population growth would be stabilized. For a country, where the unemployment rate is as high as 33 percent (World Bank, 2000) and about 18 percent of the adult population (632,000 people) aged 15 up migrate out of the country, 88 percent for labor, further growth of population can lead to escalation of unsolved problems.

The family planning program in Tajikistan needs solid evidence, well-designed studies and practical recommendations on how to better address the root causes of high fertility. Research from different angles with different methodology and perspectives are needed for the country and current research can contribute to this knowledge base.

When women's knowledge of modern contraceptive methods is low, availability or accessibility of contraceptives is problematic, we can assume that women simply don't know how to space or limit fertility. In Tajikistan, available literature (DHS 2002 report) indicates good contraceptive knowledge, relatively small issues of availability and accessibility, but low use of contraception. Therefore the problem probably relates to contraceptive demand rather than supply. For this reason it is important to investigate factors effecting contraceptive choice. Current research assumes that non-contraception is also a choice selected by the women and focus on exploring effects of possible factors on the method choice within the range of data availability.

1.3 Objectives

1) To investigate the effects of contraceptive knowledge and childbearing motivation on contraceptive method choice (including nonuse) of married women in Tajikistan.
2) To explore the socio-demographic factors affecting married women's contraceptive method choice through their knowledge on contraceptives and childbearing motivation.

1.4 Research Questions

- How does the knowledge of contraception and childbearing motivation affect contraceptive method choice of married women in Tajikistan?
- What is the effect of socio-demographic factors on married women's contraceptive method choice in Tajikistan?
- To what extent does the effect of socio-economic factors on women's contraceptive method choice operate through the intervening factors of knowledge of contraception and childbearing motivation?

CHAPTER 2
LITERATURE REVIEW

2.1 Contraceptive method choice

The importance of exploring influencing factors on women's contraception decision making, use of temporary methods or long term methods, preference for specific type of contraceptives or nonuse has been found as critical in many studies and essential for family planning programs and policy makers (Entwisle 1996, Bulatao 1989, Perjaranonda 1986). Both governments and family planning programs need to consider these underlying causes and essential elements in order to successfully design, implement and evaluate programs, which could bring long lasting change and increase women's satisfaction with reproductive health.

2.1.1 Determinants of contraceptive method choice

Contraceptive method choice has many determinants. There is a vast difference between a situation wherein individuals have perfect freedom to choose from among a variety of family planning methods and one wherein a particular family planning program or government policy dictates the particular method to be used by couples (Bulatao, 1989)

Considering direct relations between contraceptive choice of women and family planning programs, different aspects determining choice has been analyzed in the existing literature. Factors as diverse as access to health centers, place of residence, economic status and social networks are among the factors examined.

Health center and family planning outlets are found to be very influential on women's contraception decision making, including preferences for particular choices (Entwisle, 1996). Entwisle's study in rural Thailand found pill use as a preference of women accessing sub-district health centers, who were encouraging its use.

The finding is based on historical specialization of health centers and does not have a potential of replication, unless other service provision centers also specialized in pill promotion. The value of this finding is in demonstrating the effect of accessing service providing centers on women's contraceptive method choice.

Both place of residence and economic status of the family have been found to have significant effects on method choice through the mechanisms of availability and accessibility (Entwisle, 1996). Social networks have been found to be influential on women's method choice by sharing information about success and failure of each other with certain methods, thus creating perceptions about those methods (Entwisle, 1996). Kohler (1997) has examined the influence of social networks. According to him, women are uncertain about the merits of modern contraception and estimate the different qualities of available methods based on imprecise information from network partners. Women contraceptive choices are determined by this estimate and by private knowledge about own personal characteristics. This process of social learning leads to path-dependent adoption of fertility control within, and diversity in contraceptive practices across villages or social strata (Kohler, 1997). It may also partly explain the difference of contraceptive method preferences between villages found in the study by Entwisle in rural Thailand.

In fact the factors listed above, along with many others, might be argued to effect contraception method choice through two general mechanisms: knowledge and access to contraceptives, which are two well known and widely used determinants of use of family planning programs. According to Bulatao, contraceptive choice is a personal preference influenced by outside factors (Bulatao, 1989) and the importance of both knowledge and accessibility as determining factors are also highlighted in his article.

If we look deeper into this statement, where the choice is called a personal preference influenced by outside factors, not all the factors influencing choice can be summarized under only two categories of knowledge and availability/accessibility. That is why this model cannot explain why in some cases where knowledge on contraceptives exists and accessibility is not a big issue, contraceptive use can be low (DHS, 2002). Personal preference can influence certain method use within the range of known and accessible methods if there is a desire to stop or space childbearing

(Thomson, 1997). But if the desire is not in favor of preventing pregnancy, in other words if childbearing desire takes over, then knowledge and accessibility alone cannot necessarily result in contraceptive use. We can assume that in a given situation, nonuse of any method might be women's informed choice influenced by surrounding factors, which increased childbearing motivation.

2.1.2 Availability and accessibility of contraceptives

Availability and accessibility of contraceptive methods are determining factors of contraceptive use and method selection of women in many studies (Ross 2002, Ozalp 1999). This relation is mainly based on the basic understanding, where women simply cannot choose and use a method, which is not available or accessible. In addition, different studies show that the role of availability, where in many cases there is a wide range availability of methods, their accessibility to women and uninterruptible supply have a determining role in increased use of modern contraceptives (Mannan 2002, Ross 2002).

2.1.3 Education, contraceptive knowledge and the method choice

As the major influencing factor in different aspects of social and behavioral science, knowledge and education are the key determinants of contraceptive method choice (Bulatao 1989, Hampton 2001). Information on women's education serves as an explanatory variable for understanding differences in fertility, knowledge and effective practice of the contraceptive method, knowledge of side effects and receptivity to the "new technologies" (Pejaranonda, 1986). Even the literacy level by itself, excluding knowledge on particular contraceptives has been found to have a big influence on women's method choice: the odds of method use among illiterate women were 34 percent lower compared to those among women with a secondary or higher education (Dang, 1995).

Past studies document the relationship of female education to the decline in fertility (Abernethy, 2002). According to Abernethy's study, education can influence women's reproduction in several ways: by increasing knowledge of fertility, increasing socioeconomic status, and changing attitudes about fertility control. Education may also affect the distribution of authority within households, whereby

women may increase their authority with husbands, affect fertility and use of family planning (Bulatao, 1989). Caldwell (1982) sees education as a vehicle by which people learn more western views about the family, which leads to a more child-centered parenting approach, and to different definitions of acceptable childcare. This may lead to a demand for fewer children, and consequently, the use of contraceptives to prevent or to space childbirth (Caldwelll, 1982).

It has been argued in the literature that female education essentially provides a greater range of general information and access to modern and effective contraceptive methods (Caldwell 1982). Education also weakens norms and values supporting motivations toward a large number of children, and preventing contraception use (Gage 1995). Better-educated women are more likely to practice effective contraception than are less educated women, and as proportion of well-educated women increase in the society, it is expected to weaken structural support for high fertility throughout the population (Berhanu, 1997).

The level of women education has been found to have a positive relation to contraceptive method choice by increasing knowledge of the methods, but the difference is more and more influenced by the family planning programs, which address all women regardless of educational level (Oni, 1990). As it is revealed from the study in Nigeria, in 1983, women's awareness of contraceptive methods varied by education level, starting from 60 percent for uneducated and up to 98 percent for highly educated women. The knowledge became nearly universal among women regardless of education level by the year 1988, constituting over 90 percent even for uneducated women (Oni, 1999). But it has been highlighted that women knowledge increased only on particular methods as pills, IUDs, injectables and sterilization. However, education does not have a positive relation to the use of all contraceptive methods. For instance, a study in Bangladesh revealed that the better-educated couples are significantly less likely to use sterilization than other modern methods (Mannan, 2002). Several possible reasons were given on educated women's unwillingness to undergo sterilization: religious, fear of surgery operation, future uncertainty and finally availability of wide-range, effective alternative contraceptive methods.

Education level found also to be influential on women's childbearing motivation. The study by Wijsen among Dutch women used a conceptual framework, where education along with other social characteristics influences childbearing motivation and work motivation, combination of which brings to the timing of the birth (Wijsen, 2002). The study revealed an association between level of education and the timing of childbirth. It also found an association between childbearing motivation and the importance mothers attach to the paid work: mothers with a high level of education are more likely to have an individualistic view of motherhood and to attach a high importance to the paid work (Wijsen, 2002).

2.1.4 Previous experience of contraceptive use

A study in Nigeria found that women who had ever practiced contraception were more likely than those who had not to be aware of contraceptive methods (Aziken, 2003). Similarly increase in women knowledge on contraceptives due to the past use was found by Paul Little in the United Kingdom (Little, 2001). Both studies highlighted contribution of previous experience on contraceptive methods to the knowledge. Contribution has been found at least on knowledge related to the particular method practiced before.

Another study in Finland found that women knowledge on certain contraceptive methods increased due to the past use of them. IUD was found as a method on which those women who practiced it before have had greater knowledge (Sihvo, 1998). Practicing contraception improves women's knowledge especially on proper use or on required using procedures. It has been found in Zimbabwean study that women who ever used condom before the survey were more likely to know about its usage, with 88% correctly stating that a condom should be unrolled over an erect penis (Sambisa, 1999).

2.1.5 Previous experience of abortion

Abortion is described as a strong desire to control fertility at the later stage, when no contraception was used or if it was not effective (Miller, 1994). In Tajikistan, as in other republics of the former Soviet Union, abortion was an important method of birth control. The reasons for this include the history of liberal

legislation on abortion and its availability, the limited availability of modern contraception, and the attitudes and practices of the medical establishments in the past. Abortion is legally available on request during the first 12 weeks of gestation and thereafter on more restrictive grounds (DHS, 2002). The short supply of contraceptive methods other than IUD brought to women's reliance on abortion as a method of fertility control for decades. Now the situation is changing slowly, wider range of contraceptives becoming available, what is bringing to the gradual decline in abortion rates (DHS, 2002).

Study in Armenia found a strong relationship between women's abortion experience and contraceptive use. Women's use of modern contraceptive methods found to increase after having abortion from 9.1 to 19.3 percent (Westoff, 2002). It has been described as a possible result of information provided by health personal, increased awareness on contraception as more convenient alternatives to abortion.

2.1.6 Childbearing motivation

The term motivation is defined as the forces that account for the arousal, selection, direction, and continuation of behavior (Snowman, 1982). According to Miller, motivations derive from the genetic makeup and/or experience of individuals and endure in them over time (Miller, 1992). The conclusion made by Abernethy is also in support of Miller's description of motivation:

> "Humans are genetically programmed to maximize successful reproduction by having more offspring when environmental/economic conditions appear favorable, but exercise restraint - waiting or limiting the total number of offspring, if the latter strategy promises greater long run success" (Abernethy 2002, p.1)

Human childbearing motivation is controlled by the social, cultural, economic, demographic, and other surrounding factors. Any of these factors may have either positive or negative influence to the childbearing motivation, as a result bringing to its increment or reduction.

Miller suggests that childbearing motivation should undergo some other steps before it will bring to the fertility event (Miller, 1992). As he described, when motivation towards childbearing becomes high, it will create a desire for a child or

number of children. Desire through appraisal of reality brings to intention, decision and act (Miller, 1992). It demonstrates a clear link between childbearing motivation and actual actions towards childbearing and also special location of motivation as a beginning, predicting factor.

Wijsen used individual motivation as a driver of decision making-process and its outcome as behavior (Wijsen, 2002). The decision-making process called to yield an intention to perform the behavior. Whether or not this intention can be transformed into behavior (the output of the process) is dependent on the circumstances under which the decision-making takes place (Wijsen, 2002). Wijsen examined combination of childbearing motivation and work motivation to explain timing of the first child and found a negative relationship between childbearing motivation and women age at first delivery among recent mothers in Denmark (Wijsen, 2002).

According to the Easterlin and Crimnins model, which is widely used in models of contraceptive choice, child demand is the number of children desired based on the net value of children to parents assuming that avoiding them is costless. It depends on level of investment in children desired by parents, old age security, labor value of children, opportunity cost of parental time and parental consumption. Child supply is consisted of natural fertility multiplied by survival rate, and represents the number of children expected to survive to adulthood if no action is taken to limit family size; and cost of regulating fertility consisted of psychic and monetary cost of avoiding children, which may decline as society becomes more accepting of contraceptives (Easterlin, 1985). In conclusion to the given model, which relies on economic theories, it would be sufficient to say that motivation is closely related to reproductive ideals and preferences, which are influenced by the advantages and disadvantages of different family sizes. These reproductive ideals and preferences are continually reviewed and modified by the family and couple's circumstances throughout the reproductive life span (Muhwava, 2003). The applicability of this model to different contexts has been reviewed in the study among American women, where it has been mentioned that there are minorities for whom behavior and intention are poorly correlated (Zabin, 2000). The main argument was related to the change in the society, where nowadays there are more and more unstable unions and sexual contacts take place frequently outside unions and that this uncertainty in future

relationships effects the concept of desired family size. Stable marriage was defined as an assumption for the confident childbearing motivation (Zabin, 2000).

2.1.7 Socio-demographic factors

Studies and surveys in many countries reveal that women's contraceptive method choice is influenced by a variety of socio-demographic and behavioral factors such as age, education, occupation, work status, number of living children, desire for additional children, knowledge of contraceptive methods, exposure to mass media and others (Mannan 2002, Raine 2003, Trussell 1999, and others). However, due to the data limitations the current research cannot look into all those factors. It will further elaborate on women age, urban/rural residence, geographic division, education level, religion, ethnicity and employment.

2.1.7.1 Age

Women are less likely to practice contraception when their fecundity is low, i.e., at the extremes of maternal age and as age and parity increase, the women would switch to more effective methods of contraception (Klein, 2001). In support to this argument, a study in Thailand found that the relationship between age and contraceptive use took an inverted U-shape; that is the proportion of women using modern methods varied with age, reaching peak among those in their 30s and declining thereafter. The need for contraceptive methods was considerably reduced with increasing age therefore proportions using different methods were likely to decline. Similarly the report of fertility and family planning surveys in different countries indicated that current use of contraceptives was mostly common among the women aged 30-39 years, and least common among youngest women, gradually increasing to a peak number during the mid to late childbearing years, then dropping off among the women of older age (Dang, 1995). A study in Vietnam revealed that percentage of both modern and traditional contraceptive users tends to increase by the age of women (Dang, 1995). This finding was among married women of reproductive age, thus representing the increasing part of earlier mentioned inverted U shape.

Women's preference toward contraceptive method type changes with their age (Apter 2004, Mannan 2002, Godley 2001, Ozalp 1999). It is related to the changes in lifestyle, behavior, surrounding factors and reflects the changed needs and requirements.

Women in their early reproductive ages can be expected to have more nonpermanent sexual relations then those of older ages. Young women have biologically higher fecundity compared to their older counterparts. However, nowadays the global trend is towards later marriage and later childbearing, what can be achieved through effective contraception. Taking into account the possibility of nonpermanent sexual relationships, young women contraception needs include prevention of both STIs and pregnancies. The main options for adolescents are condoms, backed up by emergency contraception, and oral contraceptives in a longer, mutually monogamous relationship (Apter, 2004).

For the group of women in their middle reproductive ages, who can be assumed to be predominantly married or in a steady relationships, any available method might be suitable. However, different studies reveal that preference of married women in middle reproductive ages is largely in favor of temporary and long-term methods (Ozalp 1999, Godley 2001).

As age and duration of marriage increase, along with all temporary and long-term methods, couples are more likely to use sterilization. This is possibly because, with increase in age or marital duration, women are more likely to reach their desired fertility and prefer permanent methods to prevent pregnancy (Mannan, 2002).

2.1.7.2 Rural/Urban Residence

Due to the differentials between rural and urban areas in terms of economic perspectives, employment type, family planning and health service coverage, availability and accessibility of the methods, women's preference may vary in selecting contraceptive method. A study in Vietnam found that the proportion of modern method users was higher in urban areas in contrast with a higher proportion of traditional method users in rural areas (Dang, 1995). The same study also revealed that despite the significant difference between urban and rural populations in the likelihood of using contraceptives, the patterns of the method choice were quite

similar. It has been described as a possible outcome of the family planning program emphasis on IUD promotion. Similar results are revealed from the Tajikistan survey, where the IUD was the predominant modern method of users, which also has been widely promoted by the family planning program all over the country (DHS, 2002).

Easier access to abortion service in urban areas compared to the rural may also influence contraceptive method choice. The DHS data suggests that the observed number of abortions in Tajikistan as a method of limiting birth is nearly twice higher in urban areas compared to rural (DHS, 2002). According to the same source, it might be related to the long history of abortion as a mean of birth control in the country with easier access in the urban areas.

2.1.7.3 Regional Variations

It has been found in Vietnam that couples in the North are more than twice as likely to use a modern method as are those in the South (Dang, 1995). Regional difference in method selection was found in Bangladesh as well. It was highlighted that region of residence has a significant association with the use of the pill and IUD/injectable/implant (Mannan, 2002). Differences in regional characteristics such as religiosity and socioeconomic status were given as a possible explanation of this variation.

There are some cultural, traditional and socioeconomic differences from region to the region within the same countries and it is especially true in the case of Tajikistan, where geographic differences are coming historically and the interregional migration is not significant (IOM, 2003). Only cities are attracting migrants from the rural areas, therefore creating ground for some movements from rural to urban areas, but rural to rural migration is not significant. Thus, the regional mix of population has not occurred historically in Tajikistan and the difference exists in many aspects, which may effect behavior and need to be considered.

2.1.7.4 Religion

Women's contraceptive behavior is influenced by their beliefs and religion. Historically, religious norms have been against contraception of any type. Different contraceptive methods were not accepted by the leading religions – Christianity, Islam

and Buddhism. This still continues and not all the religious leaders are supportive of contraceptive methods. However, experience from Iran – an Islamic country that has incorporation religious teaching into family planning practice, shows that religion can be a positive force in contraceptive use. As a result, the Iranian family planning program has been very successful in reducing the fertility rate from 5.6 to 2.0 during the period 1985-2000 (Fahimi, 2002). Contradictory to Iranian experience, a study in India found that Muslims and the Hindu scheduled casts show significantly lower contraceptive use than Hindu other castes (Bhende, 1991). The same study also revealed that Muslims seem to prefer non-permanent and natural methods, especially the condom with significantly lower use of both male and female sterilization. It has been concluded that the lower use of female sterilization among Muslims might to be due to their larger family size objectives. Low contraceptive use among the Hindu scheduled castes explained as essentially due to their lower use of female sterilization, condoms and natural methods (Bhende, 1991).

2.1.7.5 Ethnicity

In a study by Raine (2003), ethnicity was a demographic variable that was a strong predictor of contraceptive method choice in multivariate analysis (Raine, 2003). It has been highlighted that women from one ethnic group (Latina) in the sample were less likely to use any method compared to others (African Americans and White women). Race/ethnicity found to be associated with current method, with black women being significantly more likely to present using barrier methods than hormonal methods (Raine, 2003).

Unequal distribution of economic resources and racial stereotypes impact individual life experiences both within and outside of the health care system (Malat, 2000). Malat's study in the United States on Norplant users revealed that Native Americans were more likely to use it, compared to White, African American and Asian Americans (Malat, 2000).

2.1.7.6 Employment

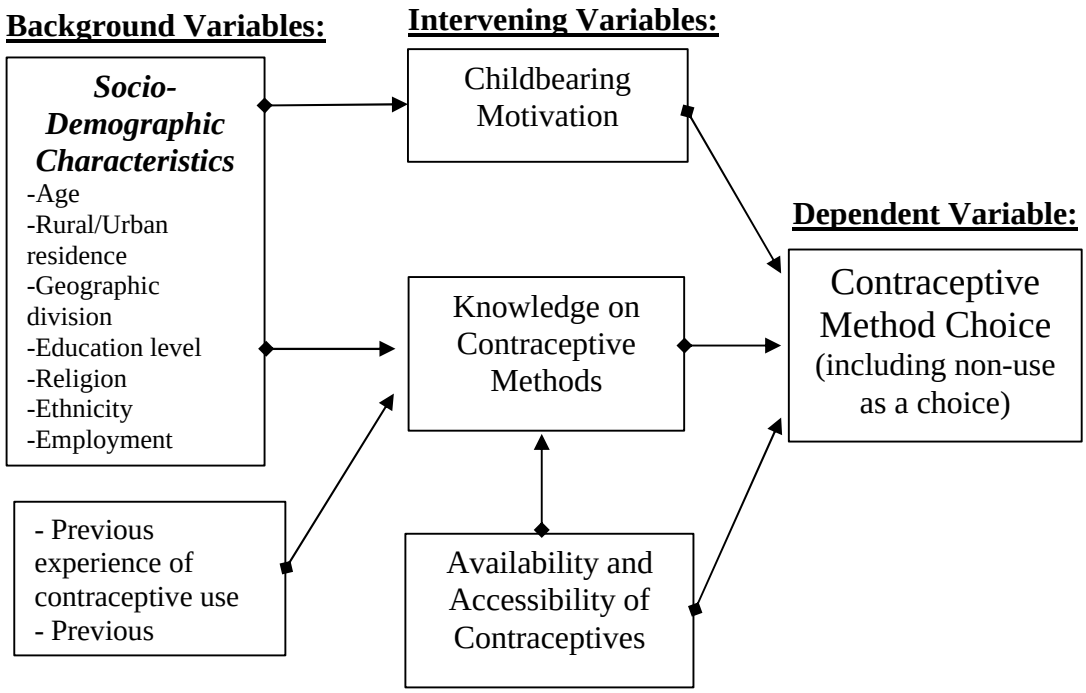
Female employment is another key factor influencing contraceptive choice (Choe 1995, Gage 1995). Women who work outside the home, and particularly those

who earn cash incomes, are presumed to have greater control over household decisions, increased awareness of the world outside the home, and subsequently more control over reproductive decisions (Gage 1995; Choe 1995). Employment outside the home also provides alternative satisfactions for women, which may compete with her childbearing and childrearing. Although the nature of the relationship between female employment status and contraceptive behavior is confirmed in developed countries, there are studies that have found little or no association in less developed countries. Some studies have found a strong positive relationship between current economic activity and contraceptive use (Shapiro 1994; Gage 1995); others report contradictory findings revealing weak or no association between work status and use of contraception (Lloyd 1991). These inconsistencies might be attributed to the fact that even work outside the home does not always conflict with childbearing in a developing country context. It might be due to the problems in the measurement of women‘s work in many of these countries. Therefore, only when working outside the home conflicts with childbearing, it is expected that workingwomen will be contraceptive innovators.

Women’s employment status has been found to have a significant positive influence on current use of both modern and traditional methods:

> “Net of others, women who were working away from home are significantly more likely to be current users than those who were working at home (or not working), about 58 and 55 percent more likely to use modern and traditional methods, respectively. The net effect of employment on the likelihood of contraception is not reduced in any significant ways when controls for husband’s education, household economic status, and type of urban are introduced. But, like that of education, the magnitude of the effect of employment is relatively higher for use of modern than traditional methods” (Berhanu 1997, pp. 12-13).

2.2 Conceptual Framework



According to the reviewed literature there are many determining factors of contraceptive method choice (Bulatao, 1989). The effect of different factors has been tested in previous studies, but this research has certain limitations, thus not all of the factors can be considered and tested. Current research will focus on few major variables and their influence on women's contraceptive method choice, which are measurable within given limitations. More specifically the focus will be on three main independent variables: Childbearing motivation, women's knowledge on contraceptive methods, and women's previous experience on contraceptive use. The study will focus on the effects of the given independent variables on women's method choice. Thus contraceptive method choice is defined as the dependent variable.

Availability and accessibility of contraceptives is another important factor directly influencing the method choice. Unfortunately, since Tajikistan DHS 2002 was not designed to evaluate contraceptive availability and accessibility factors, available data do not allow measuring them.

It is assumed that previous experience on contraceptive use will stimulate women knowledge increase on contraceptive methods, thus effects current method

choice. In the overall picture, given independent variables are influenced by different socio-demographic characteristics of women under study.

2.3 Hypotheses

- Knowledge of contraceptive methods and contraceptive use are positively related
- The higher the motivation for childbearing the lower the likelihood to use contraception and among contraceptive users the greater the likelihood to use temporary methods
- Temporary contraceptive methods are mainly used when couples did not achieved desired number of children, but want to space childbearing
- Previous experience on contraceptive use is positively associated with increased knowledge of contraceptive methods
- The effects of socio-demographic variables on contraceptive choice mainly operate through two main intervening variables: motivation for childbearing and knowledge of contraceptive methods

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Source of Data

The data set used for analyses in this research is from the Tajikistan Demographic and Health Survey 2002. This survey was carried out in Tajikistan in the framework of the sub-program "Population and Development Strategy" implemented by the UNFPA Office in Tajikistan along with the Commission on Population and Development of the Government of the Republic of Tajikistan. The demographic data was collected at the national level based on a random sample of women aged from 15 to 49. The goal of the demographic survey undertaken in Tajikistan was to develop an information base on fertility and infant mortality, migration, women's reproductive health and family planning to serve the needs of the Commission on Population and Development of the Republic of Tajikistan and other relevant institutions. Another important objective of the survey was to build national capacity in national research institutes for information gathering, processing and analysis in the areas of demography and health care. It aimed to produce demographic information essential for the identification of factors that impact on fertility and reproductive health and that could be used for the development and monitoring of strategies and programs for demographic development and reproductive health in Tajikistan.

3.2 Sampling Size and Design

The total Tajikistan DHS 2002 sample size is 3179 and currently married women aged 15 to 49 are selected from the data set. In total, responses of 2,008 married women will be analyzed. Sample selection was designed in such a way as to generate representative and comparable indicators for urban and rural areas.

2100 households were selected in three stages for the survey. Each region was differentiated on the basis of a city/village classification. Then clusters were identified within each of the segments for further selection of households. Each city cluster consisted of 20 households and each rural cluster of 30 households. Cities and towns were selected with a probability defined according to their size in the total population. In both city and village clusters, households were chosen from lists of households of the selected villages by random systematic sampling. Fifteen households represented each selected village and 20 households represented each city polling station.

3.3 Operationalization of Variables

3.3.1 Background Variables

- Previous Experience of Contraceptive Use - number of methods previously used (None, 1 method, 2 or more)
- Current Age of Women categorized into age groups (15-24, 25-29, 30-34, 35-39, 40-44, 45-49)
- Place of Residence (Rural, Urban)
- Geographic division - administrative-territorial division of Tajikistan (Dushanbe, Sogd Oblast, Khatlon Oblast, Direct Rule Districts - DRD, and Gorno-Badakhshan Autonomous Oblast - GBAO).
- Education level (1 to 4 years, 5 to 9 years, 10 to 11 years, Secondary vocational, Tertiary)
- Religion (Muslim, Christian, Other)
- Ethnicity (Tajik, Uzbek, Other)
- Current Employment (Employed, Unemployed)
- Experienced Abortion in the past (Yes, No)

3.3.2 Intervening Variables

Childbearing Motivation - the difference between desired and actual number of children. Categories: Negative, No motivation, Positive, No ideal number. Negative when actual number of children exceed desired; No motivation when actual number of children is equal to desired; Positive when desired number of children is

higher than actual; No ideal number represents women who are uncertain with the number of children they want.

Women's Knowledge on Contraceptive Methods - number of known methods out of 8 listed in DHS questionnaire: IUD, Injections, Sterilization, Pills, Diaphragm, Condom, Calendar, and Interrupted coitus (None, 1 to 3 methods, 4 to 6 methods, 7 to 8 methods)

3.3.3 Dependent Variable

Contraceptive Method Choice

Categories:

- Long-term methods (IUD, Injections, Sterilization)
- Temporary methods (Pills, Diaphragm, Condom, Calendar, Interrupted coitus)
- Nonuse

3.4 Study Limitations

The secondary data used for this study comes from only one source: the Tajikistan DHS 2002, which have had its own objectives different from those followed in the current research. Thus this study cannot go beyond the boundaries of data availability and further investigate availability/accessibility of the methods as well as other potential influential factors on women's contraceptive method choice.

Another limitation of this study is caused by cultural barriers existing in Tajikistan, especially in rural areas all over the country: It is widely expected that women should have no sex out of marriage and there is a strong social pressure on following this value. It is even culturally unacceptable for women to talk about their sexual experience or contraception when not in a steady marital relation. Taking this factor to account our study is focusing only on currently married women of reproductive age, thus not representing others outside the selected cohort. Probably data collection instruments other than face-to-face interview would be needed in other similar studies to include unmarried women as well.

None of the variables coming from the DHS survey are focused on measurement of women's access to the contraceptive methods. Existing knowledge suggest that not only is access to the contraceptives an essential precondition of the

choice but also ease of the access to the certain methods would lead to increased probability of using that method. Thus, lack of variables which could measure access to the methods in this research, should be considered in similar studies.

CHAPTER 4

RESULTS AND DISCUSSION

The results are presented in three main sections: 1) Distributions and other summary measures of all variables 2) Bivariate analyses and 3) Multinomial logistic regression.

4.1 Univariate analysis

Univariate analyses are undertaken to explore the distribution of all variables used in the study. Most of the variables are categorical thus frequency distributions are shown. The Tajikistan Demographic and Health Survey 2002 collected data from 2,100 households and interviewed 3,179 women of reproductive age. A total of 2,005 women were selected for the current study through the criteria of being currently married. A further 300 women were identified as being pregnant or immediately post-partum, and thus did not require to use contraception, and they were therefore excluded from the analysis, leaving 1,705 cases for further analyses.

An examination of the frequency distribution of cases by religion variable found that over 98 percent were Muslim (Table 4.1.). Because of the lack of variability in this variable, religion is not considered in subsequent analysis.

Over 75 percent of the women had never-used contraception before, with only slightly over 7 percent ever having used two or more methods. Not only are there low levels of contraceptive use in Tajikistan, but there is also very limited switching among methods. Only 36 percent of the sample is currently using a method, with 28 percent using a long-term method and 8 percent a temporary method.

Table 4.1. Percentage distribution of variables used in the analysis

		N	Percent
Religion	Muslim	1679	98.5
	Christian	9	0.5
	No religion	17	1.0
	Total	1705	100.0
Ever have had an abortion	Yes	312	18.4
	No	1392	81.6
	Total	1704	100.0
Age groups	15-24	291	17.0
	25-29	283	16.6
	30-34	314	18.4
	35-39	330	19.4
	40-44	291	17.1
	45-49	196	11.5
	Total	1705	100.0
Rural/Urban Residence	Urban	456	26.7
	Rural	1249	73.3
	Total	1705	100.0
Geographic Division	Khatlon	544	31.9
	Sogd	532	31.2
	GBAO	68	4.0
	DRD	368	21.6
	Dushanbe	193	11.3
	Total	1705	100.0
Education Level	1 to 4 years	62	3.7
	5 to 9 years	345	20.3
	10 to 11 years	1039	61.2
	Secondary vocational	168	9.9
	Tertiary	84	4.9
	Total	1698	100.0

		N	Percent
Ethnicity	Tajik	1169	68.6
	Uzbek	476	27.9
	Other	60	3.5
	Total	1705	100.0
Employment	Employed	677	39.7
	Unemployed	1028	60.3
	Total	1705	100.0
Number of	None	1314	77.3
	1 Method	260	15.3
	2 or more	126	7.4
	Total	1700	100.0
Childbearing	Negative	311	18.3
	No motivation	469	27.6
	Positive	760	44.7
	No ideal number	161	9.5
	Total	1701	100.0
Number of Known Methods	None	59	3.5
	1 to 3 Methods	648	38.0
	4 to 6 Methods	750	44.0
	7 to 8 Methods	248	14.5
	Total	1705	100.0
Contraceptive method choice	Non-use	1093	64.2
	Temporary Methods	138	8.1
	Long-term Methods	472	27.7
	Total	1703	100.0

An indication of the desire to limit fertility is the 18% percent who report ever having had an abortion. This is likely an underestimate of the real level of abortion. Knowledge of contraception is high, with 4% percent knowing no method and 44 percent knowing 4 to 6 methods. About 18 percent of women have more children than they would like to and are classified under having negative childbearing motivation. Nearly 45 percent reported currently having fewer children than desired, thus having positive motivation towards childbearing. Almost 10 percent do not have a desired number of children and can be expected to be unconcerned about fertility control.

Over 60 percent of women in the sample are unemployed. This is mainly due to the lack of employment opportunities for both male and female in the country accelerated by economic instability. Unemployment brings to economic insecurity and consequently may lead to parent's view of old age security in larger number of grown children. Although levels of unemployment are high, levels of education are also high for a developing country. Over three-quarter of women have ten or more years of schooling, and less than five percent have less than five years of schooling. This high level of schooling exists in a predominately rural country, with almost three quarters of the sample living in rural areas.

4.2 Bivariate analyses

Bivariate analyses was undertaken in three blocks: 1) Between background variables and the dependent variable 2) Between background variables and intervening variables, and 3) Between intervening variables and the dependent variable. Cross tabulation is used as the method of analyses and the Chi-square test is employed to test the hypothesis of independence between the variables.

Cross tabulation of background variables with the dependent variable indicated that most of the relationships were statistically significant. For only one variable, ethnicity was the relationship non-significant (Table 4.2.). Contraceptive method choice was found to be statistically independent from ethnicity in the sample. In another words the contraceptive method choice in the sample does not significantly change its pattern among the different ethnic groups. Two ethnicities – Tajik and Uzbek are the predominant majority population of Tajikistan and consequently in the sample as well. Members of these two ethnicities live in close proximity and share similarities in culture, traditions and behavior. Thus factors related to contraceptive method choice might be similar for both ethnicities. It may partly explain the finding of no significant variation in method choice between ethnic groups.

As might be expected, women who reported that they have ever experienced an abortion were more likely to be current users of contraception than women who had never experienced an abortion. Abortion is a strong indicator of the desire to control fertility, and women who have undergone an abortion probably are subsequently motivated to use efficient contraception.

It is notable that except for the very small group of women who have a tertiary level of education, and the slightly larger group of women with a secondary/vocational level of education, there are only small differences in contraceptive method choice by education category. This suggests that access to contraception is not a factor that influences contraceptive method choice, as it is often argued that educational differentials in method choice are related to differential access to contraception among different educational groups.

Women's choice between temporary and long-term contraceptive methods has some variation only at the two highest education categories - secondary vocational and tertiary. Use of temporary contraceptive methods increased by about 8 percentage points between secondary vocational and tertiary education levels. It is only use of long-term contraceptive methods, which increases by about 8 percentage points from 11 years of schooling to secondary vocational and over another 8 percentage points up to tertiary levels of education that shows a strong relationship with education. The generally low use of temporary methods in all categories found increased only at the highest education level, comprising about 16 percent of eligible women. This may be because more educated women are worried about side effects of long-term contraceptives and therefore are more likely to use traditional temporary methods.

Nearly 84 percent of married women in the 15-24 years age group were not using any type of contraception. These women are likely to have high levels of fecundity and thus are at high risk of pregnancy. Considering their young age we may assume that women in this age group are at the beginning of their married life. Non-contraception might be due to the tradition in Tajik society, according to which new couples are expected to "prove" their fertility. It is also believed that having children would strengthen family relationships.

Contraceptive use is found to be very low in young age groups, increases with age and reaches the highest level at ages 40-44, and reduces afterwards. The proportion of women currently using contraception is less than 50 percent in all age groups, which suggests the widespread need for family planning interventions among women of different ages.

The percent of users of contraception was found to be slightly higher in rural areas compared to urban areas. The use of temporary methods was also found to be higher in rural areas, whereas the use of long-term methods is higher in urban areas. This variation might be as a result of temporary method's convenience in the rural areas, as these methods do not normally require health facility visits.

Contraceptive method choice varies among regions in Tajikistan. The lowest percentage of users is found in Khatlon, with less than 25 percent using and the highest percentage of long-term method users is found in GBAO, with over 63 percent of eligible women using these methods. The highest percentage of temporary method use is found in Sogd, almost 20 percent. The family planning programs should consider these geographic differences in developing action plan prioritizing regions with greater need of intervention.

Sixty percent of women in the sample are unemployed, with contraceptive use higher among those employed compared to the unemployed. Employed women have higher levels of use of both temporary and long-term methods compared to unemployed women.

Women who had never previously practiced contraception are less likely to currently use contraception compared to women who had used some methods before. Data from the sample show that 67 percent of women who never previously used contraception were not current users of contraception. Among those who did previously practice contraception, women who used two or more methods found more likely to be contraceptive users than those who practiced only one method.

If using contraception, women's preference in our sample is largely in favor of long-term methods. By the number of methods previously used, the percentage of long-term method users is twice that of short term users among both women who used 1 method in the past and those who used 2 or more methods. This difference increases up to four times among women who did not previously use any contraceptive. This might reflect the widespread promotion of long-term contraceptive methods in Tajikistan, the IUD in particular, by the health workers as the first method offered to nearly every woman.

The relationship between the intervening variables and contraceptive method choice is shown in table 4.3. Both childbearing motivation and knowledge of

contraceptive methods are found to have a statistically significant association with contraceptive method choice.

Contraceptive method choice varies little among women with negative childbearing motivation and women who have achieved their desired number of children. However, among those who have not yet achieved their desired family size, method choice is very different. Among this group, the percent using is only about 28 percent, with relatively high proportions using temporary methods, suggesting that they are focusing on spacing their births. This finding supports arguments in the literature that women with higher childbearing motivation are less likely to be contraceptive users.

The overall proportion of temporary method use is low in the sample. However, within the small percentages it is obvious that there is a negative relationship between childbearing motivation and use of temporary methods. About 10 percent of women with negative childbearing motivation reported use of temporary methods.

This percentage slightly reduced among women who had achieved their desired number of children and reduced down to nearly 2 percent among women with no ideal number of children. The small percentage of women using temporary methods suggest that the preference is mainly between no contraception and, if contraception is used, the use of long-term methods. It might be because of family planning program's main focus on promotion of long-term methods, such as IUD leaving less selecting options for women.

Another factor operating is that contraception in Tajikistan appears to be mainly being used for limiting rather than spacing births.

The small percentage of women who have no ideal number of children are the most likely to not be using contraception. It is probable that having no ideal number of children is an indicator of lack of concern towards family size, which reduces both desire and perception of need for contraception.

Table 4.2. Percentage distribution of contraceptive methods choice by selected socio-economic characteristics

		Contraceptive method choice				
		Non-use	Temporary Methods	Long-term Methods	Total	**N**
Ever have had an abortion ***	Yes	41.5	12.9	45.6	100.0	313
	No	69.3	7.0	23.7	100.0	1392
Age groups ***	15-24	83.8	6.9	9.3	100.0	291
	25-29	66.1	6.7	27.2	100.0	283
	30-34	61.0	7.7	31.3	100.0	314
	35-39	53.0	10.3	36.7	100.0	330
	40-44	52.4	9.3	38.3	100.0	291
	45-49	73.5	7.1	19.4	100.0	196
Rural/Urban Residence *	Urban	59.9	7.7	32.4	100.0	456
	Rural	65.7	8.3	26.0	100.0	1249
Geographic Division ***	Khatlon	75.4	1.6	23.0	100.0	544
	Sogd	51.7	19.5	28.8	100.0	532
	GBAO	30.9	5.9	63.2	100.0	68
	DRD	71.7	4.3	24.0	100.0	368
	Dushanbe	64.4	2.6	33.0	100.0	193
Education Level***	1 to 4 years	69.3	11.3	19.4	100.0	62
	5 to 9 years	74.2	7.0	18.8	100.0	345
	10 to 11 years	63.9	7.8	28.3	100.0	1039
	Secondary vocational	56.0	7.7	36.3	100.0	168
	Tertiary	37.8	15.9	46.3	100.0	84
Ethnicity (p=.637)	Tajik	63.5	7.8	28.7	100.0	1169
	Uzbek	65.1	8.8	26.1	100.0	476
	Other	70.0	8.3	21.7	100.0	60
Employment *	Employed	60.0	9.5	30.5	100.0	677
	Unemployed	67.0	7.2	25.8	100.0	1028
Number of methods previously used***	None	67.2	6.5	26.3	100.0	1314
	1 Method	56.9	13.9	29.2	100.0	260
	2 or more	49.2	12.7	38.1	100.0	126

Note: χ^2 significant at $p \leq 0.001$ (***), $p \leq 0.01$ (**) and $p \leq 0.05$ (*)

Having no ideal number of children might be the result of religious beliefs and conservatism towards traditional cultural norms and suggests the need for family planning program interventions.

The relationship between knowledge of contraceptive methods and nonuse as a method choice is found to follow a negative pattern. This finding from our sample is consistent with the findings from the literature (Bulatao 1989, Dang, 1995). All of the few women who did not know of any contraceptive method are nonusers of

contraception. The percentage of nonusers reduces as the number of known methods increases.

Use of temporary contraceptive methods has a positive association with knowledge of methods. Although the overall percentage of temporary method users is low in the sample, there is an increasing percent of users of temporary methods of contraception with increasing number of methods known.

The increase in the percent using long-term methods that is associated with the increase in the number of long-term methods known is truncated at knowledge of 4-6 methods, with the percentage of long-term method users found to be very close among women who know 4-6 methods and those who know 7-8 methods. Perhaps it might be indication of women finding enough variety of long-term methods to meet their needs within 4 to 6 methods. However, an increase in number of known methods from 4-6 to 7-8 is associated with an increase in the use of temporary methods. There are a number of possible reasons for this relationship. It might be that as women gain more knowledge of contraception, as indexed by the number of methods known, they may be more worried about side-effects of long-term methods and hence an increasing proportion may prefer temporary methods. Or it may be that women who know more methods have socio-economic characteristics, such as education, that make them more likely to choose temporary methods over more permanent methods.

Table 4.3. Percentage distribution of contraceptive methods choice by childbearing motivation and number of methods known

		Contraceptive method choice				
		Non-use	Temporary Methods	Long-term Methods	Total	**N**
Childbearing Motivation***	Negative	55.9	10.3	33.8	100.0	311
	No motivation	53.5	9.8	36.7	100.0	469
	Positive	72.2	7.5	20.3	100.0	760
	No ideal number	74.3	1.9	23.8	100.0	161
Number of known Methods***	None	100.0	0.0	0.0	100.0	59
	1 to 3 Methods	74.9	2.9	22.2	100.0	648
	4 to 6 Methods	56.1	10.8	33.1	100.0	750
	7 to 8 Methods	52.0	15.4	32.6	100.0	248

Note: χ^2 significant at $p \leq 0.001$ (***), $p \leq 0.01$ (**) and $p \leq 0.05$ (*)

Tests of independence undertaken between socio-demographic variables and childbearing motivation are presented in table 4.4. Two background variables, ethnicity and education level are found to have no significant association with childbearing motivation in our sample. All other variables have statistically significant relationships with childbearing motivation.

The percentage of women with negative childbearing motivation increases by age, indicating larger proportion of women having more children than desired as age increases. As expected, the percent of women who have fewer children than desired decreases with age. This clearly reflects the relationship between age and marriage, where younger age is indication of earlier phase of marriage and older age of later phase. In the beginning phase childbearing motivation is high, but more and more women reported having more children than desired at older ages. It indicates an inadequate level of control women have over their fertility, what leads to higher fertility than desired.

The percent of women who have achieved their desired family size and hence who have no motivation towards childbearing increases with age, but after attaining the highest level at ages 30-34 remains more or less steady at later ages. About 30 percent of women achieved their desired number of children starting from their early thirties.

Approximately 10 percent of women in every age group reported having no desired number of children. This indicates that there is no trend of reduction over time in the proportion of women who have no ideal family size. This remains a challenging area of focus for the family planning program.

Slightly over 20 percent of rural residents reported having more children than desired compared to 12 percent of urban residents. This might be explained by the ease of access to different type of contraception in urban areas, thus providing urban women with better control over fertility than rural women have. There is a slight variation between the percentages of women with no childbearing motivation and positive motivation among women who resided in urban and rural areas. Surprisingly, the percentage of urban women with no ideal number of children exceeds those from rural areas, constituting 15 and 7 percent respectively. As women

in urban areas have better access to information sources, usually having a modernized lifestyle compared to women in rural areas, it is unclear why the proportion of women who are indifferent to the number of children they bear should be two times higher in urban areas compared to rural areas.

By geographic division, the lowest percentage reporting negative childbearing motivation was found in the capital city Dushanbe. The highest percentage, about 43 percent, who had achieved their desired number of children are in GBAO. The percentage distribution of cases with positive childbearing motivation is relatively similar among all geographic divisions. The lowest percent of women reporting no ideal number is found in Sogd and GBAO, 1.3 and 1.5 percent respectively. About 30 percent of women from Dushanbe reported no ideal number of children, which is an issue of concern and should be addressed through family planning program.

The affect of employment status on childbearing motivation overall follows widely accepted theories of employed women being more concerned with fertility control compared to unemployed (Gage 1995; Choe 1995). Interestingly, the percent of employed women having more children than desired was found to be higher than that of unemployed women, 23 and 15 percent respectively. The percentage having no motivation is similar for both employed and unemployed women. But the percent of unemployed women having a positive motivation is higher than that of the employed and there are more women with an uncertain ideal number among unemployed women compared to employed women. This indicates that employed women are more concerned about their fertility regulation compared to unemployed women. A higher proportion of employed women having a negative motivation might be indication of a reduction in desired number of children associated with employment.

Table 4.4. Percentage distribution of childbearing motivation and socio-demographic variables

		Childbearing Motivation					
		Negative	No motivation	Positive	No ideal number	Total	N
Age groups***	15-24	1.4	9.7	80.3	8.6	100.0	291
	25-29	6.7	20.6	65.2	7.5	100.0	283
	30-34	16.3	33.5	42.2	8.0	100.0	314
	35-39	25.2	36.7	27.9	10.2	100.0	330
	40-44	32.8	34.1	23.8	9.3	100.0	291
	45-49	30.1	29.6	25.5	14.8	100.0	196
Rural/Urban Residence***	Urban	12.4	27.9	44.5	15.2	100.0	456
	Rural	20.3	27.5	44.8	7.4	100.0	1249
Geographic Division***	Khatlon	20.8	21.1	47.4	10.7	100.0	544
	Sogd	18.0	33.3	47.4	1.3	100.0	532
	GBAO	20.6	42.6	35.3	1.5	100.0	68
	DRD	17.4	29.3	42.7	10.6	100.0	368
	Dushanbe	12.7	21.2	36.5	29.6	100.0	193
Education Level (p=.164)	1 to 4 years	29.0	21.0	35.5	14.5	100.0	62
	5 to 9 years	16.3	24.2	49.9	9.6	100.0	345
	10 to 11 years	19.0	28.2	43.6	9.2	100.0	1039
	Secondary vocational	15.0	33.5	43.1	8.4	100.0	168
	Tertiary	15.5	28.6	46.4	9.5	100.0	84
Ethnicity (p=.087)	Tajik	19.6	27.5	42.8	10.1	100.0	1169
	Uzbek	14.9	27.1	50.0	8.0	100.0	476
	Other	20.1	33.3	38.3	8.3	100.0	60
Employment***	Employed	23.2	27.6	40.2	9.0	100.0	677
	Unemployed	15.0	27.5	47.7	9.8	100.0	1028

Note: χ^2 significant at $p \leq 0.001$ (***), $p \leq 0.01$ (**) and $p \leq 0.05$ (*)

According to the conceptual framework, in addition to socio-demographic variables previous use of contraceptives and previous experience of abortion also might affect women's knowledge of different contraceptive methods. Tests of the relationships between background variables and knowledge of contraceptive methods are presented in table 4.5. All background variables have statistically significant relationships with the number of known methods.

Experiencing abortion in the past is found to be associated with an increased number of methods known to women. Only 0.3 percent of women who had ever had abortion could not recognize any contraceptive methods compared to 4.2 percent of women who never had an abortion. Nearly 23 percent of women who had experienced an abortion, named 7 to 8 methods compared to only 13 percent of women who had not experienced an abortion in the past. Abortion is indication of

desire to control fertility and in case of Tajikistan, where it is legal, is obtained only from health workers, who may also give information about alternatives to abortion – contraceptive methods.

Except in age group 15-24, the percentage of women in each age group by number of methods known are nearly the same. It is only women in the young ages of 15 to 24 that have different pattern of knowledge on contraceptive methods. The percentage of women who could not recognize any contraceptive method is 7 percent in these younger age groups, whereas it is only 2 to 3 in older age groups. Smaller percentages of young women were found to be aware of 4-6 and 7-8 contraceptive methods compared to older age groups. About 44 percent of young women in the age group 15-24 know only 1 to 3 methods. These findings indicate limited knowledge of young women on contraceptive methods. Women gain knowledge about contraception as they age and have children and hence have contact with the health system, but young women are unprepared for family planning.

The number of known methods is significantly associated with place of residence. Women in urban areas can recognize more contraceptive methods than can women from rural areas. Only 1.1 percent of women residing in urban areas could not name any method, but this percentage is nearly 4 times higher in rural areas, comprising 4.3 percent. There are nearly 3 times more women in urban areas who know 7 to 8 methods compared to rural, accounting for 29 and 9 percent respectively.

Over half of women from Khatlon and DRD know 1 to 3 contraceptive methods. In Sogd and GBAO over half of women know 4-6 methods. Over 36 percent of women in Dushanbe know 7 to 8 methods, which is the highest proportion compared to other regions. This difference may be related to the ease and frequency of interactions between health workers and women in Dushanbe city. In turn, this finding highlights the geographic priorities for intervention needs.

Education is found to have a positive association with knowledge of number of contraceptive methods. Over 80 percent of women with 1 to 11 years of schooling know 1 to 6 contraceptive methods. In contrast over 80 percent of women with secondary or tertiary education know 4 to 8 methods.

Table 4.5. Percentage distribution of number of contraceptive methods known and selected background variable

		Number of Known Methods					
		None	1 to 3 Methods	4 to 6 Methods	7 to 8 Methods	Total	N
Ever have had an abortion***	Yes	0.3	30.4	46.6	22.7	100.0	313
	No	4.2	39.7	43.4	12.7	100.0	1392
Age groups***	15-24	6.9	44.0	40.9	8.2	100.0	291
	25-29	4.6	36.4	42.8	16.2	100.0	283
	30-34	1.3	33.1	47.8	17.8	100.0	314
	35-39	3.0	35.5	44.5	17.0	100.0	330
	40-44	2.4	39.5	46.0	12.1	100.0	291
	45-49	2.6	41.3	40.3	15.8	100.0	196
Rural/Urban Residence***	Urban	1.1	24.6	45.4	28.9	100.0	456
	Rural	4.3	42.9	43.5	9.3	100.0	1249
Geographic Division***	Khatlon	3.3	51.8	38.2	6.7	100.0	544
	Sogd	5.6	20.3	56.2	17.9	100.0	532
	GBAO	0.0	13.2	75.0	11.8	100.0	68
	DRD	3.0	55.4	31.0	10.6	100.0	368
	Dushanbe	0.0	23.3	40.4	36.3	100.0	193
Education Level***	1 to 4 years	11.3	45.2	37.1	6.4	100.0	62
	5 to 9 years	4.9	53.0	35.1	7.0	100.0	345
	10 to 11 years	3.1	39.5	46.4	11.0	100.0	1039
	Secondary vocational	0.6	11.9	48.2	39.3	100.0	168
	Tertiary	2.4	6.0	45.2	46.4	100.0	84
Ethnicity*	Tajik	2.7	35.8	46.3	15.2	100.0	1169
	Uzbek	5.0	43.5	38.7	12.8	100.0	476
	Other	5.0	36.7	41.7	16.6	100.0	60
Employment***	Employed	1.9	35.6	43.7	18.8	100.0	677
	Unemployed	4.5	39.6	44.2	11.7	100.0	1028
Number of methods previously used***	None	4.5	41.0	42.0	12.5	100	1314
	1 Method	0.0	35.8	48.5	15.7	100	260
	2 or more	0.0	11.9	56.4	31.7	100	126

Note: χ^2 significant at $p \leq 0.001$ (***), $p \leq 0.01$ (**) and $p \leq 0.05$ (*)

The knowledge of the number of contraceptive methods known is slightly different between the two major ethnicities – Tajik and Uzbek. The proportion of women who could not recognize any method is higher for the Uzbek ethnicity and the proportion of women who could recognize 7 to 8 methods is higher in Tajik ethnicity. Over 40 percent of women know 1 to 3 methods in Uzbek and over 40 percent of women know 4 to 6 methods in the Tajik ethnicity. These percentages suggest that overall knowledge of contraceptive methods is higher among Tajik married women compared to Uzbek.

There is a higher proportion of women who could not name any contraceptive method among unemployed women compared to the group of employed women. A higher proportion of employed women were found to know 7 to 8 methods compared to the unemployed. The distribution of other cases is quite similar for both employed and unemployed women knowing 1 to 3 or 4 to 6 methods.

Previous experience of contraception appears to have a strong influence on women's knowledge of contraceptive methods. Almost 5 percent of women who had never previously practiced contraception could not recognize any contraceptive method, in comparison all women who had previously practiced at least one method could recognize a minimum of 1 to 3 methods. Moreover, the percentage of women who know 7 to 8 methods increases by each number of previously used methods. Over 80 percent of women who used 2 or more methods demonstrated knowledge on 4 to 8 methods, whereas over 80 percent of women who did not use any method before could name 1 to 6 contraceptive methods.

4.3 Multivariate analyses

Multivariate analysis is used to identify the net effect of factors affecting contraceptive method choice. Since the dependent variable is categorical and has more than two categories, multinomial logistic regression is used to estimate effects. Results are presented in two models. Model A incorporates all background variables and Model B adds intervening variables. Change in the parameters between Model A and Model B can be interpreted as the amount of the effect of a background variable in Model A that is mediated through the intervening variables.

The results of the multivariate analysis are shown in Table 4.6. The parameters shown are odds ratios. An odds ratio of one indicates no affect. An odds ratio of less than one indicates a negative effect, with the difference between 1 and the coefficient (multiplied by 100) indicating the percentage difference in the odds of the event happening, compared to the reference category of the dependent variable, between the variable category and the reference category of the independent variable. Conversely, an odds ratio of greater than 1 indicates a positive effect.

Place of residence, ethnicity and employment are three background variables categories of which were found to have no statistically significant effect on women's

choice of methods. Results of chi-square test undertaken earlier also illustrated no significance in association between ethnicity and childbearing motivation. But place of residence and employment did have a statistically significant association with contraceptive method choice in chi-square tests**.** This suggests that the effects of residence and employment on contraceptive methods choice are mainly explained by other socio-economic variables, probably education, which in the model has a very strong effect on method choice.

The odds of women who experienced abortion being a user of a long-term method compared to no method was found to be over two times higher compared to women without a previous abortion. Similarly, the odds of women who practiced abortion being a user of temporary methods compared to non-use is over twice higher than women who did not practice abortion before. There was no difference among women with or without a previous abortion in the odds of using a long term or temporary method (see Table 4.6).

The odds of women in older age groups, compared to the youngest age group, using long-term methods versus no–use illustrates an increasing pattern by the age of women. Starting from three times higher in age group 25-29 compared to the 15-24, the odds of using long-term methods versus non-use increases up to five times in 40-44 age group compared to the 15-24. This tendency sharply declines at the age group 45-49, but still their odds of using long-term methods versus non-use is higher than of women in 15-24. The results from Model A indicate that women's preference of temporary methods compared to non contraception is high in the middle ages compared to both youngest and oldest reproductive ages. However, when controlling for the intervening variables in Model B the odds ratios are reduced for the all age groups and become non-significant. This suggests that much of the differences observed among age groups in choice of temporary methods, compared to using no method, are a result of age differences in motivation to bear children and knowledge of contraception.

Compared to women in the youngest age group, women in their late twenties and early thirties are significantly more likely to choose long-term rather than temporary methods. These women, who have perhaps reached their desired family size, are probably searching for more long-term methods.

By geographic division, women in GBAO were found to have the highest odds ratio of 4 times being more likely to use long-term methods against non contraception compared to women in Dushanbe. The odds of women in Sogd compared to women in Dushanbe choosing long-term methods rather than not using contraception was also higher. Women in Khatlon and DRD were found to have lower odds of using long-term methods versus non contraception compared to women from Dushanbe. Only the odds ratio of GBAO compared to Dushanbe is statistically significant in the model and it is reduced in the Model B. One would expect women in the capital city - Dushanbe to be more active users of contraception than in provinces, but controversially, both comparisons found the odds of women using either long-term or temporary methods versus non-use higher in most of provinces compared to Dushanbe. Although statistically insignificant, only women in Khatlon found to have lower odds of using either methods versus non-use compared to women in Dushanbe. Comparison between selecting long-term methods versus temporary also showed women from the provinces to have non-significant but nearly equal or less odds ratio compared to women in Dushanbe. This finding suggest that not only are women in Dushanbe less active in using contraception compared to women in other parts of the country, but also their preference towards long-term methods against temporary is mostly higher than other women. It is controversial to expected situation, where use of temporary methods, which may require more frequent health care services are easier to find in the capital city compared to the provinces.

The data suggest that women from Sogd and DRD are less likely to use long-term method versus temporary, compared to women in Dushanbe. After controlling for the intervening variables the relationship remain the same for the Sogd province and slightly reduced in others. In other words, women's choice in different geographic divisions between the long-term contraceptive methods and non contraception is not strongly affected by knowledge on contraceptives or childbearing motivation.

The odds of women with lower education on using long-term methods versus non-use of contraception found to be lower compared to women with tertiary education. The odds of women with 1 to 4 years of schooling using long-term contraception versus not using contraception are 65 percent lower compared to

women with tertiary level of education. Similar levels are found for other educational categories. These findings show the importance of education in women's choice between using long-term contraception or not using contraception. However, more importantly, they indicate that effect is mainly confined to those with a tertiary education, a relatively small segment of the population. After controlling for other background variables, and the intervening variables, there is relatively little difference among other educational categories in the preference to use long-term methods versus non-use. Although this suggests that the family planning program has done well in getting women of all educational categories to use contraception, albeit at relatively low levels, it also suggests that there is a need to explore the characteristics of tertiary levels of education that promote such higher levels of use of contraception.

By education level as expected, the odds of using either long-term or temporary methods vs. non-use found to be lower in all levels compared to women with tertiary education. In comparison of both long-term and temporary methods versus non-use inclusion of intervening variables into model reduced the percentage difference in the odds ratios and statistical significance in some cases, what highlights the intervening effect of knowledge on contraceptives and childbearing motivation. The variation in odds of women with lower education on selecting long-term vs. temporary methods compared to women with tertiary education did not result in a statistically significant effect to the model. Although not significant, it is interesting to note the large odds ratios in the choice of long-term methods compared to temporary methods for women with 10-11 years of education and secondary vocational educational. This suggests that although tertiary level educated women are the most likely of all women to use contraception, they are also more likely to prefer the use of temporary methods. Women at lower levels of education, who are most affected by program strategies promoting mainly longer-term methods such as IUD, mostly choose these methods. An increase in contraception rate would be likely if the program also promoted temporary methods, many of which are highly efficient, to women with lower education.

One would expect women as a result of experiencing abortion, what is indication of desire to control fertility would have stronger preference towards more effective contraceptive methods. However, a non significant difference was found in

the odds of women using long-term methods versus non-use by previous contraceptive use in our sample. The odds of women who practiced only one contraceptive method in the past were found to be nearly two times higher for using temporary methods versus non-use compared to women who never used contraception. But though not statistically significant, the odds of women who used two or more methods in the past using temporary vs. non-use were found to be about 20 percent less compared to those who did not use any. This might reflect dissatisfaction of women who used 2 or more methods in the past with the methods, especially if we assume that they used some of non-effective temporary methods, and this may have reduced their preference for temporary methods. The odds of women who used 1 method on selecting long-term vs. temporary method is about 50 percent lower than of women who never used contraception previously, but of those who used 2 or more methods in the past is about the same as those who did not use any. It suggests the possibility of beginners starting with the temporary methods and later switching to more effective long-term contraceptive methods.

The odds of women who had not achieved their desired number of children choosing long-term methods versus non-use is about 40 percent less than for women who have more children than they desire. The data indicate the higher likelihood of using long-term methods among women with positive motivation and no ideal number compared to those who achieved their desired number or have more children than desired. The odds of using temporary methods is lower among women with positive motivation and no ideal number compared to women with negative or no motivation towards childbearing, but the differences are not significant. These findings suggest that the higher the motivation for childbearing the lower likelihood of using contraception. However, motivation for childbearing does not affect the choice between long-term and temporary methods.

Table 4.6. Multinomial logistic regression odds ratios for contraceptive method choice

	Long-term method users vs. Non-users		Temporary method users vs. Non-users		Long-term vs. Temporary method users	
	Model A	Model B	Model A	Model B	Model A	Model B
Socio Demographic Characteristics						
Ever have had an abortion ***						
Yes	2.62 ***	2.65 ***	2.69 ***	2.79 ***	0.98	0.95
No	1.00	1.00	1.00	1.00	1.00	1.00
Age groups ***						
15-24	1.00	1.00	1.00	1.00	1.00	1.00
25-29	3.15 ***	2.9 ***	1.05	0.95	2.99 **	3.07 **
30-34	3.5 ***	2.73 ***	1.38	1.04	2.53 *	2.64 *
35-39	5.09 ***	3.89 ***	2.32 *	1.93	2.2 *	2.01
40-44	5.1 ***	3.83 ***	1.92	1.73	2.65 *	2.22
45-49	1.66	1.25	0.83	0.72	1.99	1.75
Rural/Urban Residence						
Urban	1.09	1.08	0.94	0.86	1.16	1.25
Rural	1.00	1.00	1.00	1.00	1.00	1.00
Geographic Division ***						
Khatlon	0.75	0.80	0.65	0.84	1.16	0.96
Sogd	1.41	1.29	11.79 ***	10.97 ***	0.12 ***	0.12 ***
GBAO	4.01 ***	3.55 ***	4.08	3.87	0.98	0.92
DRD	0.84	0.89	1.72	2.24	0.49	0.40
Dushanbe	1.00	1.00	1.00	1.00	1.00	1.00
Education Level *						
1 to 4 years	0.35 *	0.40 *	0.46	0.74	0.77	0.54
5 to 9 years	0.40 **	0.43 **	0.30 **	0.44	1.35	0.99
10 to 11 years	0.53 *	0.55 *	0.29 **	0.35 **	1.86	1.55
Secondary vocational	0.54	0.51 *	0.24 **	0.23 **	2.27	2.17
Tertiary	1.00	1.00	1.00	1.00	1.00	1.00
Ethnicity						
Tajik	1.29	1.29	0.86	0.86	1.50	1.50
Uzbek	1.40	1.48	0.87	0.93	1.62	1.60
Other	1.00	1.00	1.00	1.00	1.00	1.00
Employment						
Employed	1.14	1.14	1.20	1.10	0.95	1.04
Unemployed	1.00	1.00	1.00	1.00	1.00	1.00
Number of methods previously used *						
1 Method	0.94	0.90	1.95 **	1.79 *	0.48 **	0.50 **
2 or more	0.93	0.78	0.88	0.63	1.05	1.25
None	1.00	1.00	1.00	1.00	1.00	1.00
Intervening Variables						
Childbearing Motivation *						
Negative		1.00		1.00		1.00
No motivation		1.14		0.97		1.17
Positive		0.62 **		0.78		0.79
No ideal number		0.69		0.36		1.91
Number of known Methods ***						
3 or less Methods		1.00		1.00		1.00
4 to 6 Methods		1.75 ***		3.63 ***		0.48 *
7 to 8 Methods		1.56 *		6.36 ***		0.25 ***

Table 4.6. Multinomial logistic regression odds ratios for contraceptive method choice (cont.)

	Long-term method users vs. Non-users		Temporary method users vs. Non-users		Long-term vs. Temporary method users	
	Model A	Model B	Model A	Model B	Model A	Model B
-2 Log Likelihood Ratio	1704.80 ***	2171.68 ***				
df =	40	50				
n =	1689	1689				

Note: $p \leq 0.001$ (***), $p \leq 0.01$ (**) and $p \leq 0.05$ (*)

The odds of women who know 4 or more methods of contraception were higher for use of both long-term and temporary methods versus non-use compared to women who know 3 or less methods. In comparison between long-term vs. temporary methods the odds of women who know 3 or less methods is higher than others on choosing long-term methods. This data suggest that women in a sample with greater knowledge on contraceptive methods are more likely to use different methods, including temporary methods, and women with less knowledge are more likely to be non-users or long-term method users. It is probably because use of temporary methods requires more knowledge and skills than use of the popular IUD as a long-term method, thus only women with higher knowledge are using temporary methods. It is also possible that women with more knowledge may also be more worried about the side effects of use of long-term methods and therefore they choose temporary methods.

The test of significance of two logistic models is calculated as -2log likelihood of the reduced model (Model A) subtracted from -2log likelihood of the full model (Model B). This is distributed as Chi-square with degrees of freedom being the degrees of freedom (df) of the full model minus df of the reduced model. So based on the results the difference is 2171.68 - 1704.80 (466.88). This difference is distributed as chi-square with df of 10 (50 minus 40). This is significantly different from 0 at a probability of less than 0.000. That is, the full model explains significantly more variation in the dependent variable than does the reduced model.

In table 4.7, the extent to which the effects of socio-economic variables are mediated through the intervening variables is examined. An indicator of the amount of the effect of the background variables that is mediated through the intervening

variables is the change in the chi-square values between Model A and Model B. If all of the effects were mediated through the intervening variables we would expect that the chi-square values for the variables in Model B would be non-significant. Among the background variables that have a statistically significant effect in the model, the chi-square value of overall effect of previous abortion experience and education level on women's contraceptive method choice are slightly reduced in Model B. Effects of age and geographic division differentiations of women on their contraceptive method choice are reduced the most, when the intervening variables are included in Model B of the regression model. The chi-square value of age affect on the method choice is reduced by about 25 percent and chi-square value of geographic division differentiations on the method choice is reduced by almost one-third. These results suggest that most of the effects of the background variables on method choice operate through mechanisms other than childbearing motivation and contraceptive knowledge.

Table 4.7. Chi-Square test of Multinomial logistic regression model

	Model A	**Model B**
Ever have had an abortion	45.28 ***	44.71 ***
Age groups	81.70 ***	60.35 ***
Rural/Urban Residence	0.40	0.71
Geographic Division	171.06 ***	122.65 ***
Education Level	17.57 *	16.99 *
Ethnicity	1.23	1.88
Employment	1.31	1.05
Number of methods previously used	9.35	10.79 *
Childbearing Motivation		19.73 **
Number of known Methods		46.22 ***
n =	1693	1689

Note: $p \leq 0.001$ (***), $p \leq 0.01$ (**) and $p \leq 0.05$ (*)

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Only few of selected background variables were found to be non-significant predictors of the method choice. Unlike findings in many other studies (Raine 2003, Dang 1995, Shapiro 1994), the pattern of contraception method choice was found to have small variation by ethnicity, rural/urban residence and employment. Although two major ethnicities reside in the country – Tajik and Uzbek – they are different in some aspects like spoken language the cultural similarities, religion and lifestyle in shared communities along with other factors left little space for differentials in their contraceptive method choice. Similarities in patterns of the method choice of women residing in rural areas with urban areas represent small variation in the factors effecting method choice by category of residence. Women employment also did not make a difference on method choice. Probably these parameters could lead to difference in patterns of method choice if family planning program would not focus only on IUD as a single solution for everyone. The data suggest that although women's education level is high and their knowledge of the methods is good, but there is a very small variation in switching between methods. Obviously a single method can not meet the requirements of every woman and one method promotion program might stimulate women who are not satisfied with it to seek for abortion as a mean of contraception and be a non-user of any method.

Along with other background variables, which have statistically significant effects on women's choice of contraception method, the geographic division was found to be a strong predictor of the choice pattern. Compared to all other areas, women in Khatlon province were found to have the lowest level of using either long-term or temporary contraceptive method. These findings highlight a disturbing

situation in Khatlon in terms of family planning situation and require a sophisticated approach by family planning program.

The hypotheses of the study were mainly supported by the results of the analysis. A positive relationship was found between knowledge of contraceptive methods and the use of both long-term and temporary methods. Women with higher knowledge of contraception were more likely to be using contraception rather than being a non-user. Women with a higher motivation for childbearing were found to be less likely to use contraception and, if using contraception, were more likely to choose temporary methods than those with lower motivation for childbearing. Previous experience of contraception was revealed to have a strong influence on women's knowledge of contraceptive methods. The hypothesis that the background variables influence women's contraceptive method choice through intervening factors of knowledge of the methods and motivation for childbearing did not find full support from the analysis.

Childbearing motivation and women's knowledge of contraceptive methods were found to have statistically significant effects on women's contraceptive method choice both in bivariate analysis and in the multinomial logistic regression model. However, the overall results of multivariate analyses suggest that most of the effects of the background variables on method choice operate through mechanisms other than childbearing motivation and contraceptive knowledge. While interventions that focus on reducing the ideal family size, and hence reducing childbearing motivation, and increasing levels of contraceptive knowledge, will operate to increase levels of contraceptive use and, in particular, long-term use, they will have little effect on reducing differences in method choice among socio-economic groups.

5.2 Recommendations

No significant difference was found in patterns of contraception method choice between rural and urban areas of Tajikistan, which might be interpreted partly as a success of family planning program. However, the geographic division was found to have a significant difference in choice of contraception. Relatively low contraception use was found in Khatlon province compared to others and if we consider the large proportion of country's population residing there, the situation can

be interpreted as requiring attention. The family planning programs should consider these geographic differences in developing action plan prioritizing regions with greater need of intervention.

Widespread IUD promotion all over the country cannot be easily isolated from its effect on women's contraceptive method choice. Overall current analyses demonstrated women in Tajikistan mainly choosing between contraception and limiting rather then spacing births, and when using contraception in most of the cases this would mean using IUD (DHS 2002). If the IUD does not meet their needs, which is very possible for many reasons, then women would most likely not use any contraception and in many cases turn to abortion as a mean of fertility control. It is important for family planning program in Tajikistan to make wider range of contraceptive methods available to women, what could probably reduce proportion of non-users and seeking for abortion.

As eliminating socio-economic differentials in contraceptive use is an important policy because of the need for equity, more research is required to identify the paths through which socio-economic variables affect contraceptive choices. Interventions directed at socio-economic variables are at best long-term and in many cases, such as age, are not an option therefore it is the mechanisms through which socio-economic variables affect contraceptive choice that need to be a target for interventions. One possibility may be that there is difference in access to contraceptives among persons from different socio-economic groups. It was not possible to include a measure of access in this research.

This research used only quantitative data and analyses. More research is needed on women's contraceptive method choice and its predicting factors using qualitative techniques what could help to increase our knowledge and understanding mechanisms through which the method choice is made.

BIBLIOGRAPHY

Abernethy V. D. (2002). “Fertility decline; no mystery”. **Ethics in science and environmental politics ESEP**, 1–11

Apter D., Cacciatore R. (2004). “Adolescent contraception”. **International Congress** Series 1266 81– 89

Aziken M. E., Okonta P. I., (2003, June). “Knowledge and Perception of Emergency Contraception Among Female Nigerian Undergraduates”. **International Family Planning Perspectives**, Volume 29, Number 2

Berhanu B., Hogan D. P., (1997, May). “Women’s Status and Contraceptive Innovation in Urban Ethiopia”. **PSTC Working Paper** #97-03

Bhende A. A., Choe M. K., (1991). “Determinants of Contraceptive Method Choice in an Industrial City of India”. **Asia-Pacific Population Journal**, Vol. 6, No. 3, p. 41-66

Bulatao R. A., Palmore J. A., & Ward S. E., (1989). “Choosing a Contraceptive Method Choice in Asia and the United States”. **East-West Center Honolulu, Hawaii**

Caldwell J., (1982). “Theory of Fertility Decline”. **London: Academic Press**

Choe M. K., Mason K. O., (1995). “Korean women's labor force participation: attitudes and behavior”. East-West Center reprints Population Series; no.302

Dang A., (1995, March). “Differentials in Contraceptive Use and Method Choice in Vietnam”. **International Family Planning Perspectives**, Vol. 21, No. 1, 2-5

Easterlin R.A., Crimmins E.M., (1985). “The Fertility Revolution – a Supply-Demand Analyses”. **Chicago University Press**: Chicago

Entwisle B., Rindfuss R. R. (1996). “Community and Contraceptive Choice in Rural Thailand: A Case Study of Nang Rong”. **Demography**, Vol 33, No.1 1-11

Fahimi F. (2002). “Iran’s Family Planning Program: Responding To A Nation’s Needs”. **Population Reference Bureau,** MENA Policy Brief

Gage A. J. (1995). “Women’s Socioeconomic Position and Contraceptive Behavior in Togo”. **Studies in Family Planning**, Vol.26, No.5, 264-277

Gille H., (1985). “The World Fertility Survey: policy implications for developing countries”. **International Family Planning Perspectives**. 11(1): 9-17.

Godley J. (2001). “Kinship Networks and Contraceptive Choice In Nang Rong, Thailand”. **International Family Planning Perspectives,** Vol. 27, No 1, 4-10

Hampton N., (2001). “Choice of contraception”. **Current Obstetrics & Gynecology,** II, 50-53

International Organization for Migration. (2003, July). “Labour Migration From Tajikistan”.

Klein J., Sauer M. V. (2001). “Assessing fertility in women of advanced reproductive age”. **Obstetric Gynecology** Volume 185, Number 3, 758-770

Kohler H. (1997). “Learning in Social Networks and Contraceptive Choice”. **Demography**, Vol. 34, No. 3, 369-383

Little P., Griffin S. (2001). “Unwanted pregnancy and contraceptive knowledge: identifying vulnerable groups from a randomized controlled trial of educational interventions”. **Family Practice** Vol. 18, No. 4, Oxford University Press

Lloyd C. B. (1991). “The Contribution of the World Fertility Surveys to an Understanding of The Relationship Between Women's Work and Fertility”. **Studies in Family Planning**, Vol. 22, No. 3, May - Jun., 144-161

Malat J. (2000). “Racial differences in Norplant use in the United States”. **Social Science & Medicine** 50, 1297-1308

Mannan H. R. (2002). “Factors in contraceptive method choice in Bangladesh: goals, competence, evaluation and access”. **Contraception,** 65, 357–364

Miller B. W. (1994). “The Relationship between Childbearing Motivation and Attitude Toward Abortion among Married Men and Women”, **Family Planning Perspectives**, Vol.26, No.4, 165-168

Miller W. B. (1992). “Personality Traits and Developmental Experiences as Antecedents of Childbearing Motivation”. **Demography,** Vol.29, No.2 (May), 265-285

Muhwava W. (2003). “Patterns of Contraceptive Use at the Edge of Fertility Transition in Zimbabwe”. **African Population Studies**, Vol. 18, No. 1, 19-33

Oni G. A.; McCarthy J. (1990). “Contraceptive Knowledge and Practices in Ilorin, Nigeria: 1983-88”. **Studies in Family Planning**, Vol. 21, No. 2. (Mar. - Apr.), pp. 104-109

Ozalp S., Yalcin O. (1999). “Factors affecting the contraceptive choice in a developing country”. **International Journal of Gynecology & Obstetrics**, 65, 53-57

Pejaranonda C., Santipaporn S. (1986). “Contraceptive method choice in Thailand: an analysis from the 1985 survey of fertility in Thailand”. **National Statistical Office, Office of the Prime Minister**

Raine T., Minnis A. M. (2003). “Determinants of contraceptive method among young women at risk for unintended pregnancy and sexually transmitted infections”. **Contraception** 68, 19–25

Ranjit N., Bankole A. 2001). “Contraceptive Failure in the First Two Years of Use: Differences Across Socioeconomic Subgroups”. **Family Planning Perspectives**, Volume 33, Number 1, January/February, pp. 19-27

Ross J. (2002). “Contraceptive Method Choice in Developing Countries”. **International Family Planning Perspectives,** Volume 28, Number 1, 32-40

Sambisa W., Williams T. (1999). “Youth Sexual and Reproductive Health Knowledge, Attitudes, and Practices in Gweru, Zimbabwe”. **Family Planning Service Expansion and Technical Support**, Results of a Baseline Survey

Shapiro D., Tambashe B. O. (1994). “The Impact of Women's Employment and Education on Contraceptive use and Abortion in Kinshasa, Zaire”. **Studies in Family Planning**, Vol. 25, No. 2, Mar. - Apr., pp. 96-110

Sihvo S., Hemminki E. (1998). “Contraceptive health risks - women's perceptions”. **Journal of Psychosomatic Obstetrics and Gynecology**, Volume 19 issue 3, September

Snowman J., Biehler R. F. (1982). “Psychology applied to teaching”. 4th ed, Dallas Geneva, Houghton Mifflin

Tajikistan DHS, 2002. “The Tajikistan Demographic and Health Survey 2002 Report”. **Commission on Population Development Government of the Republic of Tajikistan**

Thomson E. (1997). "Couple Childbearing Desires, Intentions and Births". **Demography,** vol. 34, No.3 (Aug.), 343-354

Trussel J, Kost K. (1987). "Contraceptive failure in the United States: a critical review of the literature". **Population Association of America**. Annual Meeting Collected Papers. Vol. 9.

Trussell J., Vaughan B. (1999). "Contraceptive Failure, Method-Related Discontinuation and Resumption of Use: Results from the 1995 National Survey of Family Growth". **Family Planning Perspectives,** Vol. 31, No.2 (Mar. – Apr.), 64-72+93

UNDP Tajikistan (2003). "NHDR (National Human Development Report) Tajikistan"

UNDP (2003). "United Nations Population Division Database on Contraceptive Use". March. **Department of Economic and Social Affairs, Population Division, New York**

UNFPA Tajikistan. (1999). "Tajikistan Country Profile".

UNFPA (2000). "The State of World Population 2000. Lives Together, Worlds Apart". Press Summary.

UNFPA (2002). "Rapid Assessment of current reproductive system in Tajikistan".

USAID (1999). "Health and Family Planning Indicators: A Tool for Results Frameworks". Volume I. **Office of Sustainable Development Bureau for Africa USAID**, July

Westoff F. C., Sullivan J. M. (2002). "Contraception – Abortion Connections In Armenia". **DHS Analytical Studies,** No. 6, ORC Macro, Calverton, Maryland USA.

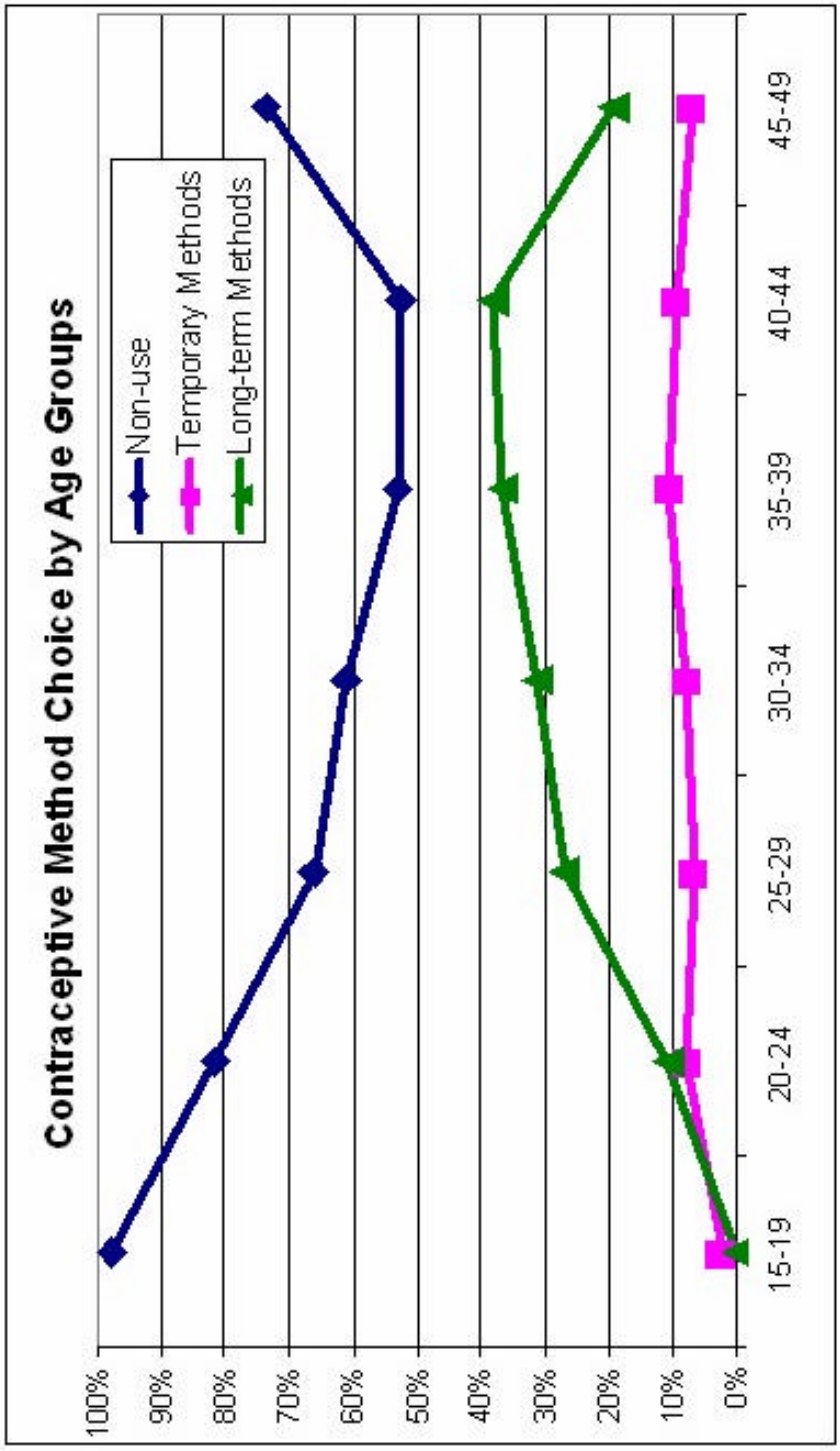
Wijsen C., Mulder C. H. (2002). "Education, motherhood motivation and child-timing decision making". Paper for the Scholar Seminar '**Education and Postponement of Maternity**', October 25-26

World Bank (2000). "Republic of Tajikistan, Poverty Assessment". Report No. 20285-TJ, June

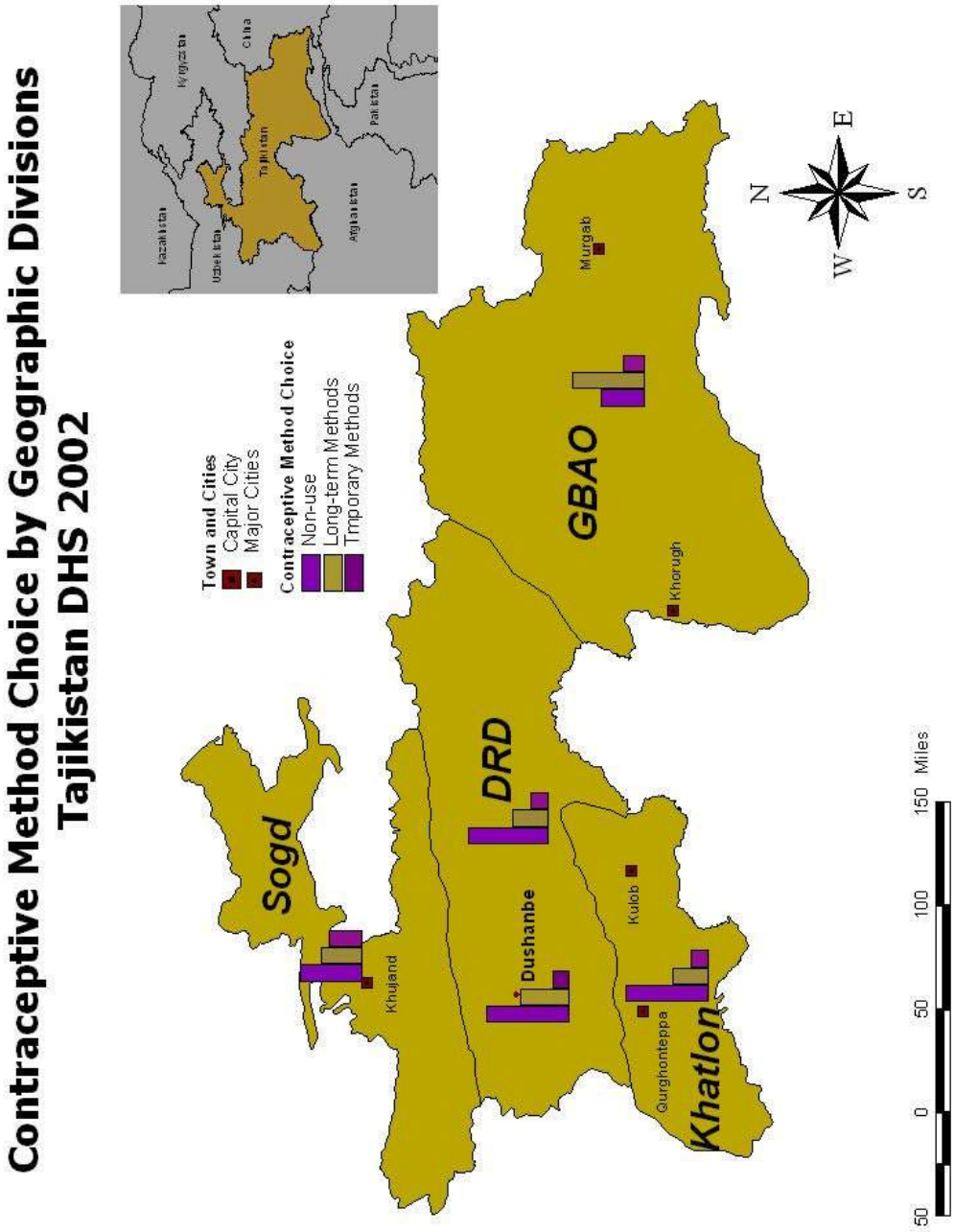
Zabin L. S., Huggins G. R. (2000). "Partner Effects on a Woman's Intention to Conceive: 'Not with This Partner' ". **Family Planning Perspectives**, 32(1):39–45

APPENDIX

APPENDIX A


Contraceptive Method Choice by Age Groups
Non-use
Temporary Methods
Long-term Methods
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
15-19
20-24
25-29
30-34
35-39
40-44
45-49

APPENDIX B


Contraceptive Method Choice by Geographic Divisions
Tajikistan DHS 2002
Town and Cities
Capital City
Major Cities
Contraceptive Method Choice
Non-use
Long-term Methods
Timporary Methods
Sogd
DRD
GBAO
Khatlon
Khujand
Dushanbe
Kulob
Qurghonteppa
Khorugh
Murgab
N
E
S
W
150 Miles
100
50
0
50

BIOGRAPHY

NAME	Farrukh Toirov
DATE OF BIRTH	8 January 1977
PLACE OF BIRTH	Dushanbe, Tajikistan
INSTITUTTIONS ATTENDED	Tajik Commercial Institute, Dushanbe, Tajikistan, 1993-1998: BA International Economic Relations
SCHOLLARSHIP	UNFPA Tajikistan
PRESENT EMPLOYMENT	CARE International in Tajikistan, Monitoring and Evaluation Officer
	Email: toirov_farrukh@yahoo.com