

# Fertility Intention, Sex Preference and Reproductive Behaviour in Bangladesh



M.Phil Thesis

Submitted By

Md. Islam Uddin  
Examination Roll No.2  
Session:2001-2002

Department of Statistics  
University of Dhaka

December, 2006

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# Fertility Intention, Sex Preference and Reproductive Behaviour in Bangladesh



A Thesis submitted to the Department of Statistics, University of Dhaka in partial fulfillment of the requirements for the degree of Master of Philosophy in Statistics.

Submitted By

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Md. Islam Uddin  
Examination Roll No. 2  
Session: 2001-2002

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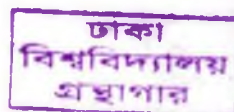
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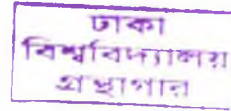
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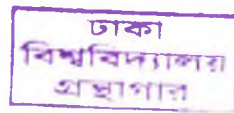
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## ABSTRACT

As contraception becomes increasingly available within a population providing couples the means to decide on the number and timing of births, the impact of fertility intention and reproductive preferences on fertility and birth control behaviour has significant policy implications in designing and implementing family planning policies in both developed and developing countries. This study analyses fertility intention and reproductive preference in Bangladesh and examines their effect on fertility and fertility control behaviour. The data for the study comes from the 2004 Bangladesh Demographic and Health Survey.

The analysis shows that desire for more than two children is still very high in Bangladesh as 31 percent of the women with two living children want more children. However, there is a declining trend in desire for more children. Age of the respondent, education, working status, religion, number of living children, number of living son and contraceptive use have negative impact on desiring for more children. In Bangladesh, observed TFR is one birth higher than the desired TFR. This gap is higher among the women who are uneducated and from high fertility region such as Chittagong and Sylhet.

In Bangladesh mean desired family size is lower than the mean number of children ever born. It has shown that mean number of children ever born decreases with the increase in age at marriage and educational levels of the respondents and the same trend is found in mean number of desired family size.

We examine the existence of sex preference in Bangladesh by using sex composition of living children and wantedness of next child. The average number of sons among those women who do not want next child is significantly greater than the same among women who want next child, showing preference for sons. Sex composition of two sons and a daughter is most preferred. Women's work status, exposure to media and number of living children has negative effect on son preference. Observed modern contraceptive use rate is found to be sixteen percent less than the expected rate in absence of sex preference. If sex preference is eliminated, total fertility rate is estimated to decline by seven percent.

The findings indicate that high fertility intention and sex preference act as a barrier for further reduction of fertility in Bangladesh. Unless the desire fertility is reduced to replacement level or below, attaining replacement level of fertility will be a formidable challenge for Bangladesh. Effective policy should be formulated to implement two-child family norm.

The findings presented in this thesis are important for policy makers in many respects. The study may be useful to other researchers doing research in the area of fertility intention and sex preference.

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## CHAPTER ONE

# INTRODUCTION

### **1.1 Background of the study**

Recently, considerable attention has been paid in the demographic literature to subjective preferences, intentions, ideals, and expectations of fertility in analyzing fertility transition. Although they may happen to be quite similar, they are not identical. Fertility preferences refer to the desired number of children over the life course whereas fertility intentions are expectation with regard to an individual's plan for having children. Ideal family size describes the existence of a societal norm regarding family size, while expected size describes a personal norm.

Son preference and high fertility intention are found on the same continuum particularly in Bangladesh where sons are the positive indicator of power, prestige, economic relief and better fortune. In the past infant and child mortality rate were considerably high. In consequence, parents were worried about the number of surviving children specially about sons. To ensure a

desired number of surviving sons people had a high level of fertility intention and eventually their reproductive behaviour was influenced positively. But by last three decades due to advanced health care technology, the rates of infant and child mortality have reduced what has influenced fertility intention. In fact, fertility has declined sharply, from 6.3 in 1971-1975 to 3.0 in 2001-2003 (BDHS, 2004).

The preference of couples to have a child of desired sex is called sex preference. Sex of a child is governed by biological factors and it is only a matter of chance to have a child of the desired sex if no advanced technologies are used. But, most of the couples in Bangladesh do prefer a certain sex composition of their offspring. In majority of the couples, preference to have at least one child of particular sex is fulfilled due to biological chance only. Biologically, sex of children is a random event with probability of 0.513 for male child (Johansson and Nygren 1991; Waldron 1983, 1987). Biological factors, sex selective abortion and differential stopping behaviour are the three major factors determining the sex composition of children (Clark, 2000). Out of these three factors, the third one is an important practical route in achieving the desired sex composition of children (Arokiasamy, 2002). However, son preference is a well known phenomenon in many low income countries like Bangladesh, India, and Pakistan. Analyzing Demographic Health Survey data from 57 countries, Arnold (1997) showed that son preference remains strong in South Asian Countries and, in that area, Bangladesh has the highest ratio of preference for sons over daughters.

Actually the term "son preference" refers to the attitude that sons are more important and valuable than daughters. In many East and South Asian societies, parents highly prize their sons for economic, religious, or social reasons. For example, in India adult sons are expected to provide economic support for their parents (Das 1984; Lahiri 1984; Miller 1981; ORG 1983). In

Contrast, daughters may represent a substantial economic burden in places where their parents provide a dowry. The more valuable sons are to their parents relative to daughters, presumably the greater the parents' desire for a high ratio of sons to daughters. One simple measure of the degree of son preference is a woman's expressed desire for the ideal number of sons and daughters converted into the ideal proportion of sons (ideal number of sons / ideal total number of children). Son preference may affect the mortality rate of daughters relative to sons. Couples with strong son preference may provide less food or poorer health care for their daughters which may increase the childhood mortality rate of daughters and, thus, alter the sex composition of the surviving children (Bardhan 1974,1982; Basu 1989; Chen, Huq, and D'Souza 1981; D'Souza and Chen 1980; Kynch and Sen 1983; Miller 1981; Nair 1996; Sen and Sengupta 1983; Timaeus, Harris, and Fairbairn 1997). While numerous articles document how son preference may affect the sex composition of surviving children, remarkably little research demonstrates how son preference may affect the sex composition of children ever born.

In fact, son preference has been considered to be one of the factors responsible for the high fertility in Bangladesh, and it is argued that such gender preferences for children may act as a major constraint in the implementation of family planning programs, particularly in countries which are beginning to experience a fertility transition. The impact of gender preference on fertility has usually been investigated by examining data relating to the sex composition of living children of couples who do not want any more children, the assumption being that if son preference has an impact on fertility, couples who have sons are much more likely not to want more children and to practice contraception. Such an impact has been documented and empirically demonstrated in several South Asian countries and more particularly in Bangladesh. According to one study, given perfect contraceptive use, if all couples desired at least two sons, families would have

an average of 3.9 children, whereas if all couples desired at least one son and one daughter, the average would be 3.0 children (Sheps, 1963).

Sons are generally preferred over daughters owing to a complex interplay of economic and socio-cultural factors. Sons keep the family heritage and contribute more than daughters to family income, provide adequate support in old age to their parents, impose less of a financial burden and carry forward the family name (Nag, 1991; Ali, 1989). On the other hands, the birth of a daughter is seen as bringing neither 'benefit' nor 'prestige' to the family. Daughters are often considered as an economic liability because of the dowry system as well as the high cost of weddings.

Once married, daughters become physically, as well as psychologically, isolated from their natal home and are seldom seen as making significant contribution to their natal family (Chowdhury, 1994). Thus, when the net utility of having a son outweighs that of having a daughter, parents are likely to prefer sons to daughters and may be reluctant to stop childbearing until their desired number of sons has been achieved (Khan and Khanum, 2000:44).

Sex bias must be tackled at more fundamental social, economic, political, and legal levels. Prohibitions are unnecessary and oppressive where there is no sex bias but only a wish to balance a family with children of both sexes. Where bias remains, prohibitions pose risks to women's and girl children's lives and health.

To reduce sex bias empowerment of women and their improved status and economic independence were taken as the most crucial aspects of the Programme of Action, adopted by the International Conference on Population and Development held at Cairo in 1994. Actually, in Bangladesh these are essential not only for the success of population programmes but also for

national development. Gender preference for male children thus can be seen as undermining the success of the overall development process, because it reflects discrimination on the basis of sex from the earliest to the later stages of life (United Nations, 1995).

Son preference has a negative effect on contraceptive use and a positive effect on the desire for additional children regardless of socioeconomic and demographic characteristics. This adverse effect of son preference on fertility regulation seemed to have persisted over the years. The effect of sex composition on contraceptive use or desire for additional children varied by parity. The negative effect of fewer living sons on contraceptive use and its positive effect on desire for additional children was higher in parities between 2 and 4 than in other parities. The effect of sex composition was stronger on desire for additional children than on contraceptive usage.

Sex preference is an issue of policy makers to control the fertility in Bangladesh. Over the last one decades Bangladesh has achieved remarkable success in achieving many demographic targets. These include decline of infant and child mortality, decline of total fertility rate and increase of contraceptive use. But the major concern of the researchers is that the TFR remains almost stable for the last 10 years though the contraceptive prevalence is increasing steadily.

Researchers argued that high fertility desire along with strong sex preference act as a barrier for further reduction of fertility in Bangladesh (Islam et al. 2003).

## **1.2 Literature review**

Sex preference for children has become a matter of public concern and an important issue for research. Although this topic is not new to demographers,

it has become a more important issue especially in developing countries. In South-East Asia, there are two main lines of thought on the issue of sex preference. One group has shown trends towards a boy bias, such as in Malaysia, Singapore and Viet Nam. The other group has shown a trend of preference for both boys and girls, or no sex bias, such as in Indonesia, the Philippines and Thailand. However during the past three decades, there have been rapid changes in South-East Asia, not only in the socio-economic and political situation, but also in the demographic situation. In almost all countries and areas in South-East Asia, population growth has declined to moderate or low levels as a result of rapid declines in fertility. In most cases, this phenomenon has been promoted in the belief that lower fertility should increase the value of human capital, help to accelerate the pace of socio-economic development and bring about greater gender equity. However, in some countries lower fertility, while helping countries towards some of their aforementioned goals, has made more apparent a strong gender bias, i.e. the antithesis of gender equity. For example, gender preference, especially for male children, may be observed as being inherent in the cultural settings of many countries in Asia.

Analyzing national level survey data from Bangladesh for the years, 1969 and 1978, Amin and Mariam(1987) states that son preference has a negative effect on contraceptive use regardless of socio-economic and demographic characteristics. It was estimated that fertility would be reduced by 4-8 percent if there was no gender preference in the country. Rahman and Da Vanzo (1993) have argued that, if couples desire to have one or more sons, then they might have larger families than would otherwise be the case, which could create, "a significant barrier to future fertility decline" in many developing countries. Leabir (1994) also shows that Bangladeshi women want at least two sons, perhaps to ensure against the risk of losing an only son to death, or to provide old-age security to their widowhood.

Various studies have shown that there are variations in sex preference among countries and regions that can be associated with a wide range of factors. These factors can be classified into micro- and macro-level factors. Concerning micro-level factors, the individual characteristics of parents, especially the mother, are expected to have an influence on the preference for children of a certain sex. Some research in developed countries has hypothesized that improving the socio-economic status of parents could affect preferences for the sex of children, particularly because the increasing autonomy of the mother would lead to a greater girl preference, or a more equitable view of the gender composition of the family.

Coombs (1977) studied preferences for the sex of children among couples in the United States, and found that the empirical result did not support the hypothesis that wives working outside the home are more likely than non-working wives to prefer girl children, or prefer both sexes. Instead, his analysis showed that "working wives are somewhat more likely to prefer sons". There are also several macro-level factors that are expected to have an impact on sex preference, such as population policy and rapid fertility decline, modernization, cultural settings, and socio-economic and political transformation.

One of the factors that previous research indicated would play an important role in determining sex preference is cultural factors. Coombs (1977) stated that "sex preferences are more deeply rooted in the culture and reflect a constellation of cultural attitudes about sex roles and values". Previous results have indicated that the cultural setting is the crucial factor determining sex preferences. For example, the existence of gender preference in Viet Nam is also related to the country's reduction in fertility. Arnold and Kuo (1984) concluded that the development of sex preference for children is more a function of cultural factors than of the individual characteristics of parents. The cultural tradition is a factor at the societal level having effects upon

individual characteristics. Studies have maintained that son preference tends to be strong in societies with a Confucian tradition, and its patrilineal and patriarchal kinship systems. Besides the cultural factors, there are other factors in both economic and political terms.

There is an interplay of socio-economic and political transformations on gender relations in Viet Nam. As Goodkind (1994) puts it, an increase in female child mortality in Viet Nam can be explained by the weakened post-war position of Vietnamese women in a situation of poverty and the Government's promotion of a free market. Women's position had previously been elevated by the goal of the revolutionary socialist regime.

In a recent study, Jejeebhoy and Kulkarni(1989) observed that although the differences between the fertility preferences of husbands and wives were small as compared to their husbands tended to desire a somewhat greater number of children as well as sons, and these differences tended to increase with age. Moreover, women's family size desires were primarily shaped by their concern for support from sons in old age, while men desired sons mainly for cultural and religious reasons. Dowry system, raising up daughters with special protection, departure of daughters from families after marriage, demand of bearing family name, strengthening family muscle various Scio cultural aspects intensify sex bias for sons in Bangladesh.

Caldwell (1989) argues that in pre-transition societies men receive a disproportionate share of their children's love, loyalty, and labor while women have to bear the costs of childbearing and rearing, and in such social setting, the fertility desires of men will be higher than those of women.

Cain and his associates (1979) suggest that in South Asian countries where women are economically dependent on their male family members, women are motivated to want a greater number of children, especially sons, who are

perceived as an insurance against the risks of divorce, widowhood and old age. In Jordan, Bangladesh and India, Repetto(1972) observed that the fertility decisions of couples were not influenced by the desire to have sons. On the contrary, they were motivated by the economic advantages associated with having children. Repetto(1972) concluded that the costs and benefits involved with a child influence fertility decisions to some extent.

In Singapore, Goh (1981) found both a preference for having children of both sexes and a clear preference for sons. This was so despite Singapore's earlier official policy characterized by the "girl or boy, two is enough" slogan aimed at achieving zero population growth by the year 2030. According to the results of Goh's (1981) analysis, a couple with children of only one sex likely would decide to have more children. In addition, among couples with more than one child, the proportion wanting no more children was higher among those with at least one son, compared with those having daughters only. Knodel and others (1987) reported that couples with only two girls were less likely to undergo sterilization. A subsequent national plan aimed at narrowing the gap between parental satisfaction and the former target of zero population growth characterized what had been an intensive national family planning and population programme.

The literature suggests that in a society with a strong preference for boys, couples with more girls would continue childbearing till they have achieved their desired number of male children. In the past, however, not much empirical evidence was available to support this contention. Arnold (1985, 1987) developed a quantitative method to estimate the impact of sex preferences on fertility behaviour and applied the method to data collected during 1965-84 from 22 countries all over the world. Arnold (1987) found that the proportion of respondents who did not want more children would increase on an average by 4.5 percentage points in the absence of gender preferences. According to Arnold, this difference would translate into a very

small increase in the average number of children wanted. The author argued that the relatively small effect was due to the random biological process, which ensures that most couples would achieve their goal for a minimum desired number of sons and daughters early in their reproductive career by sheer biological chance. Therefore, at any given time there would be only a small proportion of couples who would be motivated to have more children than they would have had without sex preferences. It is noteworthy, however, that the estimated effect was found to be the highest in countries known to have strong son preference, i.e., India, Nepal, and Korea. Evidence further indicates that despite strong preference for male children, several Asian countries like Taiwan, South Korea, and China have experienced substantial fertility declines (Arnold and Liu, 1986; Chang, Freedman, and Sun, 1981).

There is surprisingly little empirical evidence on sex preferences from India, a country where a preference for sons has been often cited as an important factor sustaining high fertility. Yet this proposition has not been subjected to rigorous testing mainly because to date there has been no uniform and reliable data on sex preferences for all the states of the country. Most of the available evidence is based on anecdotal information or on the results of small sample surveys conducted in a few states of the country. The recently conducted National Family Health Survey (NFHS, 1992-93) covering 89,777 ever married women in the age range of 13-49 offers a unique opportunity to analyze gender preferences in the country. The present paper uses the NFHS data to examine the extent to which sex preferences have constrained the success of family planning programme and inhibited the acceptance of birth control methods in the different states of the country.

Although most studies conducted in South and East Asian countries indicate a general preference for sons over daughters, many investigators have noted a co-existing preference for a daughter among couples with several sons. For example, Chowdhury and Bairagi (1990) found in Bangladesh among couples

with three or four living children, those with no living daughter were more likely to have an additional birth than those who had a living daughter. Moderate preference for a daughter in India has also been noted (Nag, 1992; Jerath and Malhi, communicated).

Further, Rahman and Others (1992) documented that the sex of the surviving children do not have a profound effect on the acceptance and continuation of contraceptives at Matlab thana in Bangladesh. Another study of South Asian countries reported that, though there is an increasing trend of son preference in Bangladesh, the effect of son preference on fertility is not clear (Nag, 1991). Studies in India and Pakistan in the period (1960-1970) provide no clear evidence that son preference significantly affects fertility (De Tray, 1984; Muherji, 1997)

However, in this concern it should be noted that Shryock and Siegel (1973) pointed out that analyses of the sex ratio at birth should be interpreted cautiously, since the sex ratio at birth can be affected by demographic characteristics of the child and parents, such as age of the mother and birth order of the child. Besides these factors, the socio-economic status of the parents can also influence sex preference. For example, an abnormal ratio of boys to girls at birth in some developed countries may not be due to a cultural setting favouring males, but rather it could be explained by the predominance of lower order births when fertility is low and also a lower rate of pre-natal deaths. Moreover, the sex ratio at birth may be unreliable and sensitive to misreporting of births, or sampling errors.

Some demographers believe that modernization will change attitudes and behaviour towards fertility, including the sex preference for children. It is believed that modernization will make people more egalitarian or less biased towards boys. Considering the evidence from developed countries, it seems that "modernization" or "development processes" gradually reduce the bias

towards the sex of children. However, the experience of newly industrialized economies (NIE) and some developing societies in Asia does not follow such a pattern. For example, the Republic of Korea and Taiwan Province of China, which have been classified as NIEs, have experienced modernization for some time, but they still have a strong bias towards boys.

One of the most crucial aspects of the Programme of Action, adopted by the International Conference on Population and Development held at Cairo in 1994, regards the empowerment of women and their improved status. Improvement of the status of females is considered essential not only for the success of population programmes but also sustainable national development. Gender preference for male children thus can be seen as undermining the success of the overall development process, because it reflects discrimination on the basis of sex from the earliest to the later stages of life (United Nations, 1995).

As social and cultural factors are likely to be substantial determinants of sex preference in South-East Asia as in the case elsewhere in Asia, some Governments have attempted to solve the problems of sex bias by enforcing laws and regulations to prohibit and punish the medical doctors and their clients practicing sex-selective abortion. Laws and regulations alone may temporarily alleviate the problem, but these methods cannot transform attitudes and beliefs that are hidden in cultural settings. Changing people's attitudes and beliefs is very difficult task and one that will take considerable time to accomplish. One of the ultimate solutions to this problem may be to conduct an IEC (information, education and communication) programme to change the attitudes of the people. As long as the traditional cultural setting still dominates, the problem of sex bias is likely to persist in many societies. IEC programmes have proved to be successful in gradually changing the attitudes and behaviour of populations, as show by the success of the family

planning programme in Thailand, and the IEC programme to control the AIDS pandemic.

Also, the role of women will be crucial in shaping future reproductive behaviour and in reducing fertility rate. Although improving women's status is important, concentrating on improving women's status only without changing people's attitudes or norms may lead to higher expectations among women, with society unable to fulfill those expectations. A programme is also needed to change the attitudes and norms of people, starting with those in the very young age groups. Such attempts may take time, but the outcome will be worthwhile in the long run.

However, it should be emphasized that these policies and programmes will be successful only when we have enough information on the social and cultural context underlying the sex bias. Therefore, further research on this topic is still needed to investigate in more detail the macroscopic and microscopic determinants of such sex preferences. If we can find specific reasons why individuals in different societies do or do not employ specific sex selection of their children, then these reasons can be used for drafting appropriate policy measures and solutions to alleviate the problems connected with gender discrimination.

### **1.3 Objectives of the study**

The primary objective of the study is to analyze the patterns and determinants of fertility intention and sex preferences in Bangladesh and examine their effects on reproductive behaviour.

**The specific objectives are:**

- a. to analyze the patterns and determinants of fertility intention in Bangladesh and its effect on reproductive behaviour,
- b. to analyze desired family size and its effect on fertility,
- c. to examine the patterns and determinants of sex preference and its effect on reproductive behaviour,
- d. to put forward policy recommendations.

**1.4 Organization of the study**

The dissertation has been organized into six chapters. Chapter one concentrates on the background, literature review and objectives of the study. Data and methodology are discussed in chapter two. Chapter three presents analysis of fertility intention and its effect on fertility. Chapter four investigates desired family size and fertility in Bangladesh. Chapter five examines the sex preference, contraceptive use and fertility in Bangladesh. Finally, Chapter six presents the policy recommendations.

## CHAPTER TWO

# DATA AND METHODOLOGY

### 2.1 Introduction

The data for the present study are taken from the 2004 Bangladesh Demographic and Health Survey (BDHS), a nationally representative survey that was conducted under the authority of the National Institute for Population Research and Training (NIPORT) of the Ministry of Health and Family Welfare. The survey was implemented by Mitra and Associates, a Bangladeshi research firm located in Dhaka. ORC Macro of Calverton, Maryland, provided technical assistance to the survey as part of its international Demographic and Health Surveys program, and financial assistance was provided by the U.S. Agency for International Development (USAID)/Bangladesh. The main field work for the BDHS commenced on 1 January 2004 and was completed on 25 May 2004.

### 2.2 Sample design

The sample for the 2004 BDHS covered the entire population residing in private dwellings units in the country. Administratively, Bangladesh is divided into six divisions. In turn, each division is divided into districts, and in turn each zila into upazilas.

Each urban area in the upazila is divided into wards, and into mahallas within the ward; each rural area in the upazila is divided into union parishads (UP) and into mouzas within the Ups. The urban areas were stratified into three groups, i) Standard metropolitan areas, ii) Municipality areas, and iii) Other urban areas. These divisions allow the country as a whole to be easily separated into rural and urban areas.

For the 2001 census, subdivisions called enumeration areas (EAs) were created based on a convenient number of dwellings units. Because sketch maps of EAs were accessible, EAs were considered suitable to use as primary sampling units (PSUs) for the 2004 BDHS. In each division, the list of EAs constituted the sample frame for the 2004 BDHS survey.

A target number of completed interviews with eligible women for the 2004 BDHS was set at 10,000, based on information from the 1999-2000 BDHS. The 2004 BDHS sample is a stratified, a multistage cluster sample consisting of 361 PSUs, 122 in the urban area and 239 in the rural area. After the target sample was allocated to each group area according to urban and rural areas, the number of PSUs was calculated in terms of an average of 28 completed interviews of eligible women per PSU (or an average of 30 selected households per PSU).

### **2.3 Sample size**

A total of 10,811 households were selected for the sample; 10,523 were occupied, of which 10,500 were successfully interviewed. The shortfall is primarily due to dwellings that were vacant or destroyed or in which the inhabitants had left for an extended period at the time the interviewing teams visited them. Of the households occupied, 99.8 percent were successfully interviewed. In these households 11,601 women were identified as eligible for

the individual interview (i.e., ever-married and age 10-49) and interviews were completed for 11,440 or 98.6 percent of them . In households that were selected for inclusion in the man's survey, 4,490 eligible men age 15-54 were identified, of which 4,297 or 95.7 percent were interviewed. The principal reason for nonresponse among eligible women and men was the failure to find them at home despite repeated visits to the household. The nonresponse rates for the current survey were lower than those for the 1999-2000 survey.

## **2.4 Questionnaire**

The 2004 BDHS has four types of questionnaires: a Household Questionnaire, a Women's Questionnaire, a Men's Questionnaire, and a Community Questionnaire.

The household questionnaire was used to list all the usual members and visitors in the selected households. Some basic information was collected on the characteristics of each person listed, including his/her age, sex, education and relationship to the head of the household.

It was used to collect information from ever- married women age 10-49. These women were asked questions on the following topics: background characteristics (age, education, religion, etc.), reproductive history, knowledge and use of family planning methods, antenatal and delivery care, breastfeeding and weaning practices, vaccinations and health of children under age five, marriage, fertility preferences, husband's background and respondent's work, awareness of AIDS and other sexually transmitted diseases and causes of deaths of children under five years of age.

The Men's questionnaire was used to collect information from men age 15-54 whether ever married or not. The men were asked questions on the following

topics: Background characteristics (including respondent's work), health and life style (illness, use of tobacco), marriage and sexual activity, participation in reproductive health care, awareness of Aids and other sexually transmitted diseases, attitudes on women's decision making roles and domestic violence.

The community questionnaire was completed for each sample cluster and included questions about the existence of development organizations in the community and the availability and accessibility of health and family planning services.

## **2.5 Description of the Variables**

To investigate various aspects of the respondents of the survey, we deal with large number of explanatory variables. For the suitability of this study some variables are recorded and at the same time some new variables are created by combining information of some other variables instead of the variables with the original codes. The selected demographic and socio-economic variables used for this study are briefly described below.

The demographic characteristics included in this study are age of the respondents, age at marriage, respondents' age at 1<sup>st</sup> birth, number of children ever born, number of living children, number of living sons, number of living daughter, number of sons ever died, number of daughter ever died, sex of the child, use of contraception, Family size, marital status etc.

This study also includes socio-economic characteristics which are place of residence, region, education of respondent, education of husband, occupation of respondent, occupation of husband, religion, work status, media access and access to electricity etc.

### **Age of respondents**

To the study of population respondent's age come at the first consideration. It gives an idea about the proportion under particular age groups, which may be associated with demographic and economical activities. The age of respondents included into the analysis are divided into four age groups with ten years interval.

### **Marital status**

Marital status is very important factor in population study. Marriage is almost universal in Bangladesh. In the present study, marital status of respondents is classified into the following four categories: married, widowed divorced and not living together.

### **Age at first marriage**

Age at marriage is one of the important factors in demography as it is directly related to fertility in many societies. It is probably the most useful act about women's marital history for the study of their fertility. Through fertility, age at marriage has an important effect on the rate of population growth, especially in a society where contraception is not generally practiced and where births do not occur outside marriage. This study also includes age of the respondents. Laws establishing minimum ages at marriage are nearly universal, which the most common ages is being 20 for males and 18 for females (UN population division, 1997). In the present study age at marriage is recorded into four categories.

### **Number of children ever born**

Total children ever born is another important factor in demography, it is also related age at marriage. Number of children born so far is identified through the use of children ever born variable. It is another measure of fertility. It relates number of living children, number of living sons, number of living daughters, number of sons ever died, number of daughter ever died, and marital status.

### **Contraceptive use status**

Women's ability of going outside the village or going to clinic was significantly associated with contraception use before controlling for the effects of demographic, programmatic, socio-economic and regional variables. Contraceptive use increases with maternal age, reaching the highest around 40 years of age and then decreasing. The variable contraceptive use included into the analysis is divided into two groups: yes and no.

### **Desired number of children**

In this study, family size preference is determined by the variable namely, desire number of total children. This study also includes desired number of male children, desire for more children, which are related to desired family size. Work status and place of work are also related to desired family sizes which are included in this analysis.

Table 2.1 List of variables with their categories

VARIABLES	CATEGORIES
<b>Respondent's age</b>	1 = <20 2 = 20-29 3 = 30-39 4 = 40+
<b>Age at marriage</b>	1 = <15 2 = 15-19 3 = 20-24 4 = 25+
<b>Number of children everborn (CEB)</b>	0-5+ CEB
<b>Number of living children</b>	1 = 1 living children 2 = 2 living children 3 = 3 living children 4 = 4 living children 5 = 5+ living children
<b>Number of living sons</b>	1 = 0 Son 2 = 1 Son 3 = 2 Sons 4 = 3+ sons
<b>Number of living daughter</b>	1 = 0 daughter 2 = 1 daughter 3 = 2 daughters 4 = 3+ daughters
<b>Place of residence</b>	1 = Urban 2 = Rural
<b>Region</b>	1 = Barisal 2 = Chittagong 3 = Dhaka 4 = Khulna 5 = Rajshahi 6 = Sylhet

(Continued----)

(Continued----)

<b>Respondent's education</b>	0 = No education 1 = Primary 2 = Secondary 3 = Higher
<b>Husband's education</b>	0 = No education 1 = Primary 2 = Secondary 3 = Higher
<b>Work status</b>	0=No 1=Yes
<b>Sex of household head</b>	1 = Male 2 = Female
<b>Current marital status</b>	1= Married 3= Widowed 4 = Divorced 5 =Not living together
<b>Religion</b>	1 =Muslim 2 =Non-Muslim
<b>Use of contraception</b>	0=No 1=Yes
<b>Exposure to media</b>	0=N0 1=Yes
<b>Access to Electricity</b>	0=N0 1=Yes
<b>Wealth index</b>	1=Lowest 2= Middle 3=Highest

### **Place of residence**

Rural Urban discrimination is highly observed for health programmed achievement in Bangladesh. In 2004 BDHS, the information was collected whether the respondent belongs to the urban or rural area of the country.

### **Region**

For administrative purpose, Bangladesh divided into six divisions. Thus respondents of each division belong to an individual locality and make several communities.

### **Respondent's education**

Respondent's education means that in this studies are female education. Female education has a significant effect on fertility and mortality. Education is the factor which regulates the income, occupation, family status, knowledge of balanced diet and protection of health from diseases severally reduce mortality and also reproductive behavior. So the education of respondents into the study and it is record into four categories: illiterate, primary education, secondary education and higher education.

### **Husband's education**

Husband's education is a very important factor in socio economic studies. Husband's education is mainly related to income of family and family status

in our country. Improvement in reducing fertility with the increased years of schooling is much greater for mother's education than father's education, since father's education should be more closely related to the household income than that of mother's education. In the present studies husband's education is four categories: illiterate, primary education, secondary education and higher education.

### **Working status of respondents**

In Bangladesh, work status of respondent's level is very low. Mother may be forced to work in order to supplement in sufficient family income or even to provide principal source of family income who had not husband. The present study included work status of respondents as explanatory variable and categorized as: earn cash for work and do not earn cash for work.

### **Exposure to media**

Exposure to media, such as reading newspaper, listening to the radio and watching TV, may have an effect on the reduction of fertility in a country like Bangladesh. Exposure to media offer different programs relating to health care, need for contraception and other related issues and thus expose women to modern ideas and views. The variable exposure to media included into the analysis is divided into two groups: yes and no.

### **Religion**

Religion is more closely related to fertility. Guerin(1983) concluded that religion and fertility is closely associated, especially for Muslims than for any

other major religious groups. As the majority proportion of population of Bangladesh are Muslims, the religion are categories into the following two groups, these are Muslims and Non-muslims.

### **Ownership of Electricity**

Electricity in the household is one of the important variables for demographic study. Among various index of modernity electricity is one of them. Several studies have indicated that fertility is low where household having electricity. In BDHS the questions was asked directly whether the household possess electricity or not.

### **2.6 Techniques of Analysis**

The present study makes use of the 2004 BDHS data for meeting the objectives of the study. A set of socio-economic and demographic variables have been considered as dependent variables in order to examine their significance in explaining the variations observed in the dependent variables. These variables include both modernizing factors such as education, occupation, work status and urbanization and traditional factors such as religion, region.

The present study makes use of a number of statistical techniques to analyze the data whenever wanted, the simplest of which is the univariate presentation that provides descriptive statistics of variables of interest. To explore bivariate relationships, a series of cross-tabulations were also run. In some cases, the extent of relationship discerned from the analysis has been evaluated by some usual measures of association viz. chi-square and odds ratio statistics. Finally, some advanced statistical technique were employed with the selected

variables in order to assess the contribution of each independent variable on the dependent variables controlling for the others. The choice of a particular multivariate analysis was made depending on the nature of data and the nature of outcome desired. The statistical techniques employed here include multiple regression analysis and multivariate logistic regression. We present below a brief description of each of these methods enumerated above.

### **2.6.1 Logistic regression analysis**

The logistic regression model is a multivariate technique for estimating the probability that an event occurs. The model is now widely used in social sciences to assess the influence of various socio-economic characteristics controlling for the effect of other variables on the likelihood of the occurrence of the event of interest. In a linear logistic regression model, the dependent variable is a dichotomous one, coded as 1 (event occurring) and 0 (event not occurring).

The independent variable may be either dummy or categorical. For a single variable, the logistic regression model is of the form

$$\text{Prob(event)} = \frac{e^{\beta_0 + \beta_1 x}}{1 + e^{\beta_0 + \beta_1 x}}$$

or equivalently

$$\text{Prob(event)} = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x)}}$$

Where  $\beta_0$  and  $\beta_1$  are the regression coefficients estimated from the data, X is the independent variable and e is the base of natural logarithm.

For more than one independent variable, the model assumes the form

$$\text{Prob(event)} = \frac{e^z}{1 + e^z}$$

or equivalently 
$$\text{Prob}(\text{event}) = \frac{1}{1 + e^{-Z}}$$

Where Z is the linear combination

$$Z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_p X_p$$

The relationship between the independent variables and the probability is non-linear. The probability estimates will always lie between 0 and 1 regardless of the value of Z. In this model the parameters are estimated using the maximum likelihood method. That is the coefficient that make our observed results most “likely”, are selected ( Narusis 1990).

In linear multiple regression model, the regression coefficient signifies the amount of change in the dependent variable for a one unit change in the independent variables.

The interpretation of the coefficients in the logistic regression is somewhat different for which the model is to be written in terms of the log odds of event occurring. This is called logit:

$$\ln \left( \frac{\text{Prob}(\text{event})}{\text{Prob}(\text{no event})} \right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_p X_p$$

This shows that the logistic coefficients can be interpreted as the change on the log odds associated with a one unit change in the independent variables. For easier interpretation, the log odds are to be changed in odds, in which case, the logistic equation stands as:

$$\frac{\text{Prob}(\text{event})}{\text{Prob}(\text{no event})} = e^{\beta_0 + \beta_1 x_1 + \dots + \beta_p x_p} = e^{\beta_0} e^{\beta_1 x_1} \dots e^{\beta_p x_p}$$

Then e raised to the power  $\beta_i$  is the factor by which the odds changes when the *i*th independent variable increases by one unit. If  $\beta_i$  is positive, this factor will be greater than 1, which means that the odds are increased, if  $\beta_i$  is

negative, the factor will be less than 1, which means that the odds are decreased. When  $\beta_i$  is 0, the factor equals 1 and the odds remains unchanged?

The choice of the dependent and independent variables depend on the nature of the data. This part of the exercise and the interpretation of the results have been undertaken in the relevant chapters of this study.

### **2.6.2 Multiple regression analysis**

Multiple regression analysis is a multivariate technique, which takes care of the fact that the assessment of the possible dependent variable on the independent variable encounters complication arising from influences of other variables, of which all are interrelated. It allows the study to single out of the net effect of each independent variable when the impact of the variables is controlled.

The general form of a multiple regression equation is

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n$$

Where Y is the estimated value of the dependent variable,  $\alpha$  is the constant term,  $\beta_i$  is the regression coefficient for each of the independent variables  $X_i$  (for  $i=1,2,3,\dots,n$ ) and measures the ability of given predictor to account for the variation in the dependent variable. The R-square shows the proportion of variation in dependent variables explained by the predictor variables assuming that there is no intercorrelation or interaction among the predictor variables.

## CHAPTER THREE

### FERTILITY INTENTION AND REPRODUCTIVE BEHAVIOUR IN BANGLADESH

#### 3.1 Introduction

Respondent's fertility preferences are important because it indicates their attitudes toward their future fertility. Although these attitudes may not perfectly presage actual future behavior, it can demonstrate prevailing social norms about family size.

The fertility level of a country is closely related to the percentage of respondents of reproductive age that does not want to have more children. Using data from eighteen countries surveyed by the DHS, John Bongaarts (Bongaarts, 1990) found that fertility of women who do not want to have more children is fifty eight percent below than that of women of comparable age who still want to have more children. In fact, the percentage of women who do not want more children has proved to be an accurate short-term prediction of fertility rates ( Westoff, 1991).

The desire for more children lends some insight into the process of changing family size norms. The desire for more children may largely depend on the current age and number of the living children. Adding the number of additional children desired to a women's actual number of living children gives a surrogate measure of prevailing individual family size norms. Family size norms may have programmatic value since the decision to adopt

contraception is likely to be, in part, influenced by individual family size norms (Kamuansipa and Chamratrithirong, 1982).

The overall fertility norm as supported by traditional culture in Bangladesh is still in favor of a large family size, coupled with strong son preference. Ongoing change is already contributing to a reduction in the desired family size and a moderate decline in the son preference, which traditionally led to high fertility in the process of pursuit of male child. Premonition of child survival, enhancement of quality of life, provision of minimal education across social classes, institutional arrangements to ensure alternatives to male children as a source of security for the old, the widows, and in the face of other uncertainties, enhancement of female status at home in the community, changing the inheritance system, which currently discriminates against women offering tangible gains of lower fertility to the common man, especially those below poverty line. These are all preconditions for sustaining small family norm at the societal level. Furthermore, as days are passing greater exposure to mass media, improved life style, increased education level, higher earning facility have been encouraging a considerable decline in the desire for more issues.

In this chapter, we investigate the levels, trends and determinants of desire for more children in Bangladesh. We also examine consistency between ideal and actual number of living children among older women who are supposed to have completed their desired fertility goal.

### **3.2 Desire for more children**

In order to obtain information on fertility preferences, the 2004 BDHS asked currently married, nonpregnant, no sterilized women: “Would you like to have (a/another) child or would you prefer not to have any (more) children?”

Pregnant respondents were asked, "After the child you are expecting, would you like to have another child or would you prefer not to have any more children?" Women who expressed a desire for additional children were asked how long they would like to wait before the birth of their next child.

Table 3.1 and Figure 3.1 show the percent distribution of currently married women by desire for another child, according to the number of living children.

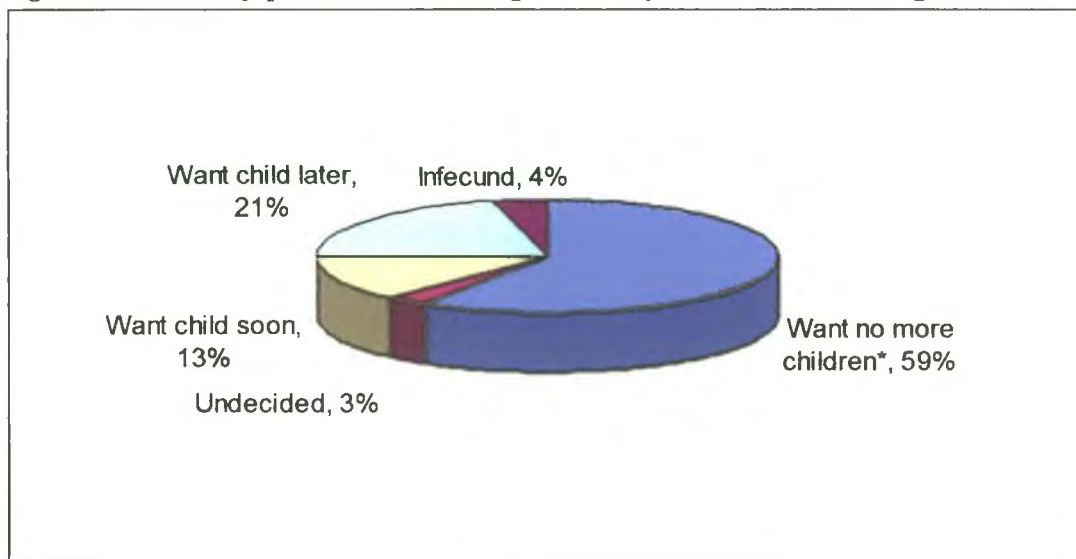
**Table 3.1 Percent distribution of currently married women by desire for children, according to number of living children, Bangladesh 2004**

Desire for children	Number of living children <sup>1</sup>							Total
	0	1	2	3	4	5	6+	
Have another soon <sup>2</sup>	63.3	20.3	7.9	4.0	1.7	1.0	0.2	12.9
Have another later <sup>3</sup>	29.2	63.7	17.7	5.2	2.5	1.0	0.4	21.2
Have another, undecided when	1.8	1.8	1.2	0.5	0.4	0.2	0.4	1.0
Undecided	1.4	2.2	3.6	1.9	0.8	1.1	1.0	2.1
Want no more	0.5	9.0	62.6	75.2	79.5	80.8	82.1	53.5
Sterilized <sup>4</sup>	0.9	2.0	4.8	10.2	9.7	8.9	4.3	5.8
Declared infecund	2.8	1.0	2.1	3.0	5.4	6.9	11.6	3.6
<b>Total</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Number of women</b>	968	2118	2574	2055	1343	771	752	10582
<sup>1</sup> Includes current pregnancy								
<sup>2</sup> Wants next birth within two years								
<sup>3</sup> Wants to delay next births for two or more years								
<sup>4</sup> Includes both male and female sterilization								

Overall, about six in ten (59 percent) currently married women age 10-49 either do not want another child or are sterilized. Thirty-seven percent of women want to have a child at some time in the future; 13 percent want one

within two years, 21 percent would prefer to wait two or more years, and 3 percent could not decide on the timing. Thus, the vast majority of married women want either to space their next birth or to limit childbearing altogether.

**Figure 3.1 Fertility preferences among currently married women age 10-49**



\*Includes sterilized women

BDHS2004

The desire for more children (including those undecided) decreases with the number of living children (Figure 3.2), reaching 89 percent among women with one living children and then declines to 31 percent among women with 2 living children and 2 percent among those with six or more children. Among women who want no more children, the reverse is observed; that is, the proportion of women who want no more children increases with the number of living children.

**Figure 3.2 Percentages of currently married women who want more children, by number of living children**

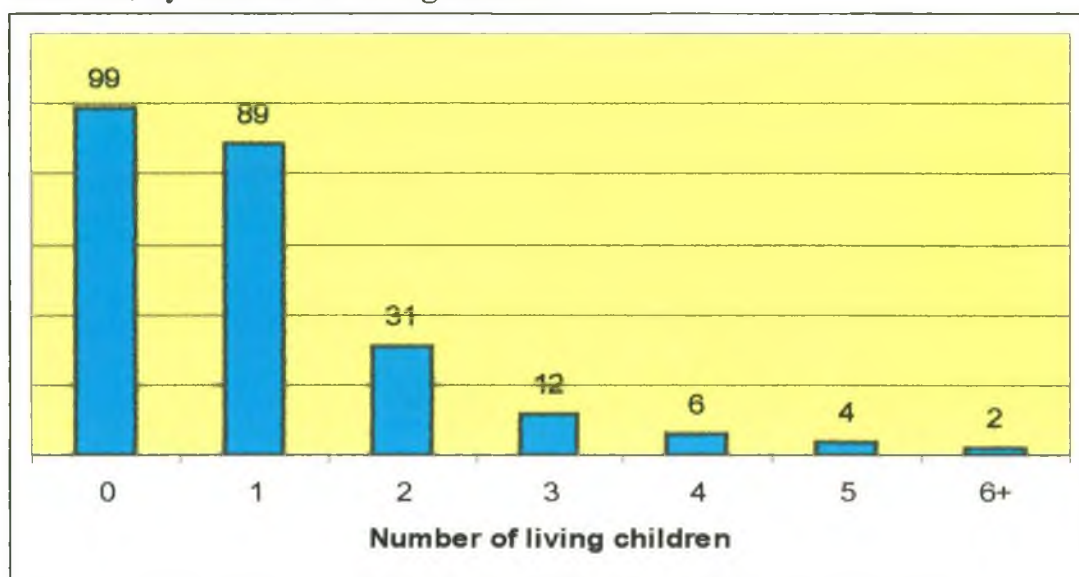


Table 3.2 shows the percent distribution of currently married women by desire for children, according to age. As expected, the proportion of women who want no more children increases with age. Twelve percent of women age 15-19 want no more children, compared with 73 percent of women age 45-49 years who either want to cease childbearing or are sterilized. The proportion that wants to delay the next birth for two or more years declines with age, as does the proportion of women who want the next birth within two years. The proportion reporting that they are unable to have more children (infecund) is 1 percent or less among women under 35, but this proportion rises to 10 percent of women age 40-44 and 26 percent of older women.

**Table 3.2 Percent distribution of currently married women by desire for children, according to age, Bangladesh 2004**

Desire for children	Age of woman								Total
	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Have another soon <sup>1</sup>	36.4	24.4	17.2	14.1	10.8	6.0	3.0	0.6	12.9
Have another later <sup>2</sup>	59.0	60.0	38.6	16.4	4.8	0.8	0.2	0.0	21.2
Have another, undecided when	3.1	1.9	1.7	0.8	0.8	0.3	0.2	0.2	1.0
Undecided	1.0	1.9	3.8	3.1	1.7	0.9	0.2	0.4	2.1
Want no more	0.4	11.8	38.2	62.5	74.7	78.5	70.9	55.1	53.5
Sterilized <sup>3</sup>	0.0	0.0	0.4	2.5	5.9	11.4	15.5	18.2	5.8
Declared infecund	0.0	0.0	0.1	0.4	1.1	2.1	10.0	25.5	3.6
Missing	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0
<b>Total</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Number of women</b>	145	1536	2121	1935	1683	1309	982	870	10582
<sup>1</sup> Wants next birth within two years									
<sup>2</sup> Wants to delay next births for two or more years									
<sup>3</sup> Includes both male and female sterilization									

### 3.3 Desire for more children and contraceptive use

Table 3.3 shows the distribution of currently married women practicing contraception by type of method and fertility intention. Nearly one-fifth (19 percent) of the respondents who wanted another child within two years were using any family planning methods and the rest 81 percent did not use any family planning method. Those who preferred to delay next birth for two or more years 40 percent of them did not use any contraception and about 60 percent of them were reported to use contraception, mostly temporary method (50 percent). Respondents who want another child undecided about but its timing 30 percent of them were found to use contraception. Those who did not want any more children, one-third (32.7 percent) of them were not using

any family planning method. Respondents who went for sterilization certainly hundred percent adopted permanent method. Respondents with declared infecund were found not to use any contraception.

**Table 3.3 Percent distribution of currently married women practicing contraception by type of method and fertility intention**

Desire for children	Family planning method practiced					Total	Number of women
	Not use	Any method	Temporary	Permanent	Traditional		
Have another soon <sup>1</sup>	80.9	19.0	14.7		4.3	100.0	1359
Have another later <sup>2</sup>	40.2	59.8	50.2		9.6	100.0	2238
Have another, undecided when	69.8	30.2	25.5		4.7	100.0	106
Undecided	60.1	39.9	35.3		4.6	100.0	218
Want no more	32.7	67.3	52.3		15.0	100.0	5660
Sterilized <sup>3</sup>		100.0		100.0		100.0	617
Declared infecund	99.5	.5	.5			100.0	379
Missing	100.0					100.0	5
<b>Total</b>	41.9	58.1	41.5	5.8	10.8	100.0	10582
<b>Number of women</b>	4438	6146	4387	617	1140	10582	

<sup>1</sup>Wants next birth within two years  
<sup>2</sup>Wants to delay next births for two or more years  
<sup>3</sup>Includes both male and female sterilization

### 3.4 Differentials of fertility intention

The desire for more children by respondent's age, education, residence, region, wealth index, work status, exposure to mass media, contraceptive use and religion is shown in Table 3.3. Overall desire for more children decreases with the increase of number of living children. As expected desire for more

children decreases with the age. Among the respondents of age group <20 who had no living child, hundred percent of them want more children, whereas respondents' of the same age group with three living children only 22.2 percent desired for more children. Women in rural areas have the same preference for having more children as urban women; however, rural women already have more children than urban women. Among women living in urban areas, the desire to have more children is lower at almost all levels of current family size than in rural areas. Some divisional variations are observed in the desire for more children. One fifth of currently married women with two children in Rajshahi and Khulna divisions want to have another child, compared with 53 percent of women in Chittagong.

**Table 3.4 Percentage of currently married women age 10-49 who want more children, by number of living children and background characteristics, Bangladesh 2004**

Background characteristic	Number of living children <sup>1</sup>							Total
	0	1	2	3	4	5	6+	
<b>Total</b>	<b>98.6</b>	<b>88.9</b>	<b>31.1</b>	<b>11.9</b>	<b>5.6</b>	<b>3.6</b>	<b>2.3</b>	<b>38.5</b>
<b>Respondent's age</b>								
<20	100.0	92.6	46.4	22.2				89.2
20-29	98.4	94.0	36.6	18.5	11.4	11.0	5.9	48.6
30-39	93.1	60.2	19.1	8.8	4.7	4.2	3.6	14.0
40-49	71.4	15.1	5.6	1.9	2.0	.4	1.1	2.9
<b>Education level</b>								
No education	93.2	77.4	28.3	13.5	5.9	4.8	2.6	23.2
Primary	99.6	90.0	33.9	10.8	4.5	2.2	1.5	36.5
Secondary	99.8	92.8	33.5	9.5	6.7	1.4	.0	58.0
Higher	100.0	91.3	21.2	11.4				64.1
<b>Place of residence</b>								
Urban	98.7	85.2	28.1	7.4	3.4	1.7	0.0	38.5
Rural	98.6	90.1	32.0	13.2	6.2	4.0	2.7	38.4
<b>Region</b>								
Barisal	98.4	90.7	31.0	11.7	5.5	1.5		37.8
Chittagong	98.8	91.7	53.4	21.8	6.4	5.2	3.6	42.3
Dhaka	98.6	89.6	30.4	12.2	6.3	4.1	.6	38.0
Khulna	100.0	87.2	22.6	5.0	4.3	1.5		37.3
Rajshahi	97.9	86.6	20.9	6.8	2.3	1.3	.8	35.6
Sylhet	98.4	91.4	52.0	23.3	13.8	8.6	8.6	45.0

(Continued---)

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<b>Wealth index</b>								
Lowest index	96.9	87.4	33.2	16.6	8.0	5.3	3.1	36.7
Middle index	99.2	90.3	31.7	8.6	4.1	2.4	1.4	38.7
Highest index	99.6	88.7	26.4	8.5	3.0	1.8	1.6	41.4
<b>Work status</b>								
No	99.1	91.1	32.9	12.3	5.5	4.1	2.7	40.9
Yes	95.0	77.5	24.9	10.4	5.8	2.0		28.5
<b>Exposure to mass media</b>								
No	95.2	82.5	34.8	16.4	7.7	5.7	3.0	29.3
Yes	99.2	90.5	29.8	9.7	4.2	1.8	1.4	42.4
<b>Contraceptive use</b>								
No	99.2	93.8	44.7	23.2	12.8	8.4	4.7	54.4
Yes	96.9	84.5	23.5	7.0	2.3	1.1	0.7	28.0
<b>Religion</b>								
Muslim	98.5	89.3	32.5	12.5	5.7	3.6	2.4	39.0
Non-muslim	100.0	85.1	21.0	6.3	5.5	3.4		33.1

Note: <sup>1</sup>Includes current pregnancy

Major differences in fertility preferences among women by levels of education are apparent. For example, 23 percent of married women with no education want to continue childbearing, compared with 64 percent of those who have higher education. This is because the educated women have not yet achieved their ideal family size. Moreover, at all parities above one, the proportions of women wanting more children are lower for more educated women than for less educated women. There are only small differences in fertility preferences by wealth index. Practically both type of respondents, with no work status and with having work status, showed lower rate of interest for next issue, when they had higher number of living children. But between them respondents with having work status showed relative higher rate of indifference toward having more children when they had already five children ( 2% interest for further issue). While having one child respondents who had exposure to mass media wanted more child than the ones who did not have any exposure to mass media. But in other cases, it was reverse. However, overall respondents with no exposure to mass media wanted fewer issues than the other group. In comparison with contraceptive non users,

contraceptive users had lower level of desire for further issue in all cases, e.g. when they had already 2 living children, contraceptive users were less likely to desire more children (23.5 percent) than non users (44.7 percent). Muslim respondents were found to have higher desire for more children than non-Muslims.

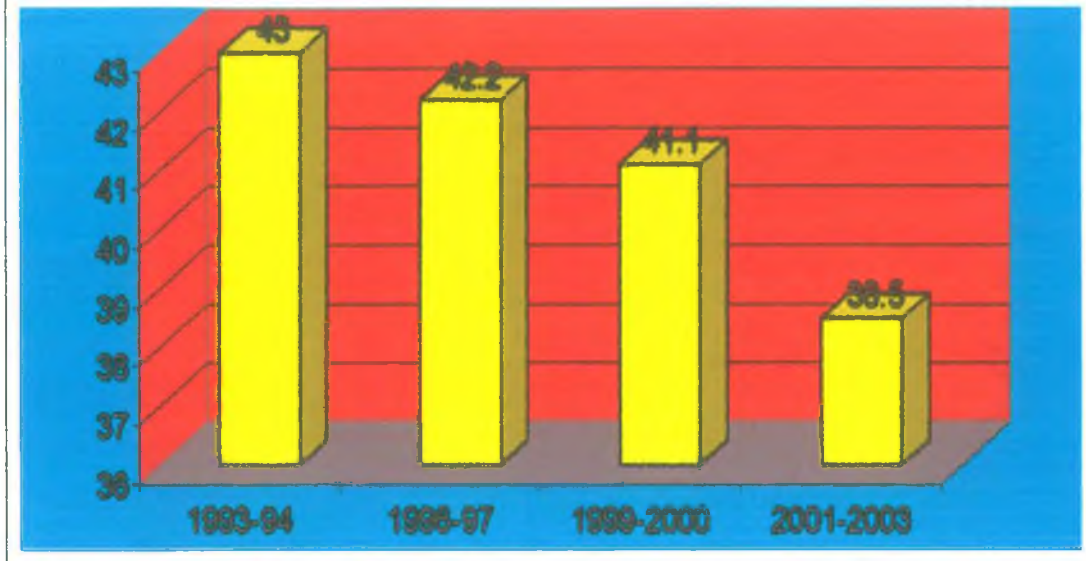
### 3.5 Trends of fertility intention

Overall, there is a declining trend in fertility desire since 1993. For instance, 43 percent of the currently married women in 1993 wanted more children, which gradually decreased to 39 percent in 2004.( Figure 3.3). There is no substantial change in fertility desire for those women who have no living children or only one living child. However, there is a sharp decline in fertility desire among the women who have 2 or more living children. This is mainly due to the fact that women's desire for more children reaches to a minimum level after attaining desired family size which is currently 2.5.

**Table 3.5 Percent currently married women wanting more children by number of living children, selected sources, BDHS, 1993-2003.**

Number of living children	1993-94 BDHS	1996-97 BDHS	1999-2000 BDHS	2001-2003 BDHS
<b>Total</b>	<b>43.0</b>	<b>42.2</b>	<b>41.1</b>	<b>38.5</b>
0	97.4	96.7	98.9	98.6
1	91.3	90.1	88.9	88.9
2	41.7	36.2	34.0	31.1
3+	57.8	56.4	44.0	23.4

**Figure 3.3 Trends in fertility intention among currently married women**



### 3.6 Determinants of fertility intention

To identify the factors affecting fertility desire, a logistic regression model was fitted considering desire for more children as the dependent variable which was dichotomous as 1 for wanting more children and 0 for wanting no more children and the selected demographic and socio-economic characteristics were taken as independent variables. The independent variables in the model are: respondent's age, respondent's education, wealth index, work status, religion, place of residence, number of living son, number of living children, contraceptive use and exposure to mass media.

Age of the respondents have highly significant negative relationship with fertility desire. Respondent's age groups of 20-29, 30-39 and 40-49 are 0.494, 0.197 and 0.054 respectively times less likely to want more children than that of women who have age group <20. Respondent's education emerged as the most important factor that influence the occurrence of wanting for more

children. The likelihood of occurrence of wanting more children among the women with secondary and higher education are 1.24 and 1.44 times higher respectively than that of no educated women. This may be due to the fact that they have not yet achieved their ideal family size.

**Table 3.6 Logistic regression analysis of desiring for more children**

Explanatory variables	Estimated $\beta$	St. error of $\beta$	Sig.	Odds ratio
<b>Age of the respondent</b>				
( <20)				1.00
20-29	-.706	.108	.000	.494***
30-39	-1.626	.126	.000	.197***
40-49	-2.911	.203	.000	.054***
<b>Educational level</b>				
( No education)				1.00
Primary	-.010	.085	.907	.990
Secondary	.213	.095	.025	1.238*
Higher	.367	.147	.012	1.443*
<b>Wealth index</b>				
Lowest index				1.00
Middle index	-.200	.082	.014	.819*
Highest index	-.165	.108	.127	.848
<b>Working status</b>				
(No)				1.00
Yes	-.219	.084	.009	.803**
<b>Religion</b>				
(Muslim)				1.00
Non-Muslim	-.283	.106	.008	.754**
<b>Place of residence</b>				
Urban	-.140	.078	.070	.869
(Rural)				1.00
<b>Number of living son</b>				
(0-1)				1.00
2-3	-.570	.085	.000	.566***
4+	-.952	.383	.013	.386*
<b>Number of living children</b>				
(0-1)				1.00
2-3	-2.601	.082	.000	.074***
4+	-3.766	.152	.000	.023***

(Continued---)

(Continued---)

<b>Contraceptive Use</b>				
(No)				
Yes	-.592	.066	.000	.553***
<b>Exposure to mass media</b>				
(No)				1.00
Yes	-.032	.082	.700	.969
<b>Constant</b>	3.098	.127	.000	22.152***

Note: Reference category is in the parenthesis

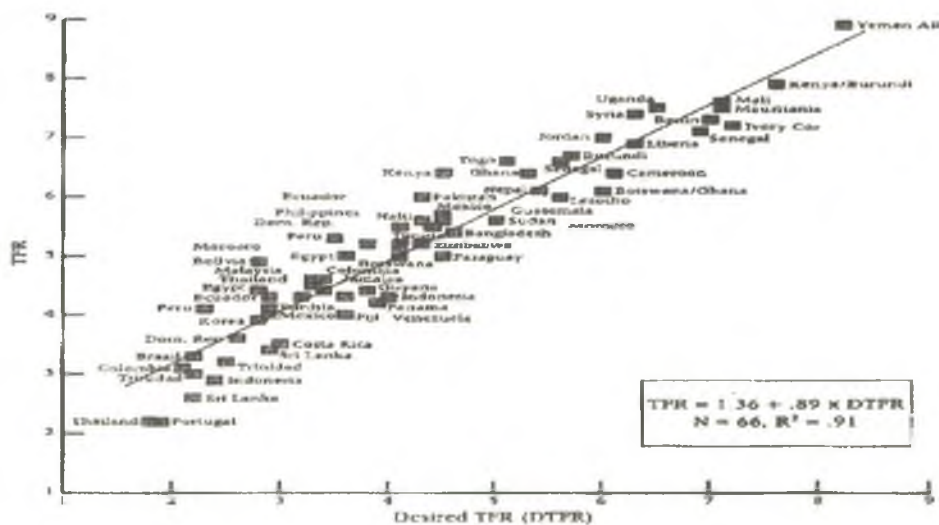
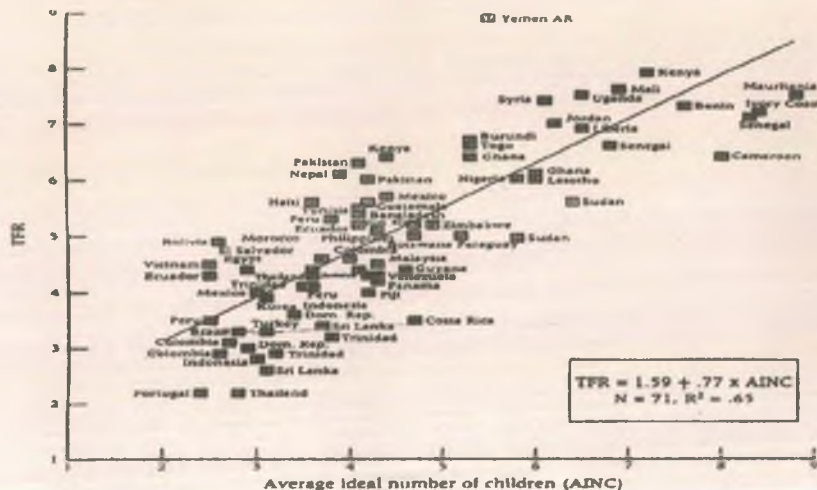
Level of significance: \*p<.05    \*\*p<.01    \*\*\*p<.000

The effect of wealth index on desire for more children is found to be less important only the middle class women are significantly less likely to desire for more children than the poorest groups. Respondent's work status came out to be an important determinant of desire for more children. Working women are 20% less likely to desire for more children than non-working women. Religion of the respondents is also appeared as a significant factor in the desire for more children. Non-Muslim women are 25% less likely to want more children than that of women who are Muslim. Number of living sons is a highly significant factor for desire for more children. Married women who have 2-3 and 4+ living sons are respectively 44% and 62% less likely to want more children than those who have 0-1 living son. Number of living children is highly significant and appeared as one of the most important factor influencing the desire for more children. Desire for more children decreases with the number of living children. Women having 2-3 and 4 or more living children are less likely to want more children than that of married women having (0-1) living child. Wanted more children among the women who are used to contraceptive is 44.7% lower risk than the non-contraceptive use women. Primary education, highest wealth index, place of residence and exposure to mass media are not found to have statistically significant effect.

### **3.7 Relationship between observed fertility and fertility desire**

Recent Demographic and Health Surveys (DHS) conducted in a large number of countries throughout the globe provide data on fertility, fertility desire and fertility behaviour. World Fertility Survey (WFS) also collected similar data in seventies in a number of countries. Using these information, researchers have developed three indicators of fertility preferences. The first one is “average ideal number of children” (AINC) calculated from the women’s response to the question about their ideal number of children. The second one is “desired total fertility rate” (DTFR) and the third one is “wanted total fertility rate” (WTFR). Using data from a number of developed and developing countries, Pritchett (1994) have shown that there is a strong relationship between actual fertility and each of the three measures of fertility desire (Figure 3.4). It is apparent from the figure that high-fertility countries generally have high desired fertility. For example, Bangladesh’s actual TFR in 1976 was 6.3, whereas its AINC was 4.1, DTFR was 4.6, and WTFR was 4.2. In contrast, Sri Lankan’s TFR in 1987 was 2.7 while AINC was 3.1, DTFR was 2.2, and WTFR was 2.2. The data indicate strong correspondence between actual fertility and desired fertility across the country.

**FIGURE 1 Relationship between actual fertility and three measures of fertility desires in less developed countries**



The regional variations in fertility, as presented in Table 3.7 also support the hypothesis. The high fertility region shows higher desired TFR and the low fertility region the lower. For example, the actual TFR of high fertility region Sylhet in 2001-2003 was 4.2 and its desired TFR was 2.9. In contrast, the actual TFR of low fertility region Rajshahi was 2.6 and its desired TFR was 1.7. Similarly, educated have lower level of TFR because their desired TFR is also lower and the higher fertility rate among the poor may be related to the higher desired TFR among them.

**Table 3.7 Desired TFR and Actual TFR by region, urban-rural and educational level in Bangladesh 2004.**

<b>Background characteristic</b>	<b>Desired TFR</b>	<b>Actual TFR</b>	<b>Difference</b>
<b>Region</b>			
Barisal	1.7	2.9	1.2
Chittagong	2.3	3.7	1.4
Dhaka	1.9	2.9	1.0
Khulna	1.9	2.8	0.9
Rajshahi	1.7	2.6	0.9
Sylhet	2.9	4.2	1.3
<b>Place of residence</b>			
Urban	1.6	2.5	0.9
Rural	2.1	3.2	1.1
<b>Education</b>			
No education	2.3	3.6	1.3
Primary incomplete	2.0	3.2	1.2
Primary complete	1.9	2.9	1.0
Secondary incomplete	1.8	2.7	0.9
Secondary +	2.0	2.2	0.2
<b>Total</b>	<b>2.0</b>	<b>3.0</b>	<b>1.0</b>

### **3.8 Consistency of women's responses on ideal family size and desire family size**

The difference between the mean ideal and mean desired family size gives rise to the need to measure the inter-item consistency of the two responses, as also done by Lightbourne (1985) and Ali (1989). To do this, responses to the two questions regarding fertility preferences were divided into consistent

responses and inconsistent responses. Responses were considered consistent if the women did not desire any more children when their current number of living children was more than or equal to their ideal number, or if the women desired more children when their current number of living children was less than their ideal number of children. Responses were considered inconsistent when the women wanted more children in spite of having as many as, or more than, their ideal number, or when they did not want any more children despite having fewer than their ideal number. From these two categories, the proportion of consistent responses was calculated.

**Table 3.8 Consistency in responses about family size preference, desire for more children and no. of living children in Bangladesh.**

	Percent
<b>Consistent responses</b>	
Ideal No.=No. of living children and want no more	23.5
Ideal No.<No. of living children and want no more	32.8
Ideal No.>No. of living children and want more	30.5
<b>Total</b>	<b>86.8</b>
<b>Inconsistent responses</b>	
Ideal No.=No. of living children and want more	3.1
Ideal No.>No. of living children and want no more	9.1
Ideal No.<No. of living children and want more	1.0
<b>Total</b>	<b>13.2</b>
<b>Grand Total</b>	<b>100.0</b>

As Table 3.8 shows, 87 percent of the responses were consistent. This can be regarded as a satisfactory rate considering that Palmore and Conception (1985) found the consistency rate falling below 60 per cent for some countries of the Asia-Pacific region. They observed that in several countries a large number of respondents, when asked about their desire to have additional

children said they did not want any more children, though they stated a preferred total number of children that exceeded the number of living children.

Most inconsistent responses were given by those women whose actual family size was less than their stated ideal family size but said they wanted no more children. A similar finding was reported by Palmore and Conception (1985), and Shah and Palmore (1979) in their studies. These were mostly women who would have liked to have more children but their circumstances inhibited them from having more. For most of these women bad health was the reason that stopped them from wanting more children.

### **3.9 Differentials of consistency of women's responses**

Women's education shows a positive effect on consistent responses, that is, consistent responses increased with the increase level of education. Women with no education, for instance, had a lowest rate of consistent response (84.6 percent), whereas women with higher level of education had the highest rate of consistent response (89.5 percent). In concern with region, it was found that respondents in Barisal (88.5 percent) and Rajshahi (88.2 percent) had the highest level of consistent responses, whereas respondents of Dhaka (85.7 percent) and Sylhet (85.2 percent) had the lowest. Rural respondents (86.9 percent) had relatively slightly higher level of consistent responses than urban respondents (86.7percent). Women's with lowest wealth index i.e. poorest group (85.1 percent) showed the lowest level of consistent responses in comparison with women's with the highest wealth index (86.8). However, women's of middle index had the highest amount of consistent responses (88.4 percent).

Table 3.9 Percentage distribution of consistency in responses for ever married women by background characteristics; BDHS, 2001-2003.

Background characteristics	Consistency in responses			Number of ever married women
	Consistent responses	Inconsistent responses	Total	
<b>Overall</b>	<b>86.8</b>	<b>13.2</b>	<b>100.0</b>	<b>11007</b>
<b>Education level</b>				
No education	84.6	15.4	100.0	4135
Primary	87.1	12.9	100.0	3262
Secondary	89.0	11.0	100.0	2922
Higher	89.5	10.5	100.0	688
<b>Region</b>				
Barisal	88.5	11.5	100.0	1316
Chittagong	86.5	13.5	100.0	1970
Dhaka	85.7	14.3	100.0	2508
Khulna	86.5	13.5	100.0	1668
Rajshahi	88.2	11.8	100.0	2534
Sylhet	85.2	14.8	100.0	1011
<b>Place of residence</b>				
Urban	86.7	13.3	100.0	3823
Rural	86.9	13.1	100.0	7184
<b>Wealth index</b>				
Lowest index	85.1	14.9	100.0	3878
Middle index	88.4	11.6	100.0	4276
Highest index	86.8	13.2	100.0	2853
<b>Work status</b>				
No	88.5	11.5	100.0	8577
Yes	81.0	19.0	100.0	2429
<b>Exposure to mass media</b>				
No	85.7	14.3	100.0	3135
Yes	87.3	12.7	100.0	7872
<b>Contraceptive use</b>				
No	80.6	19.4	100.0	4952
Yes	91.9	8.1	100.0	6055
<b>Religion</b>				
Muslim	86.7	13.3	100.0	9769
Non-muslim	88.1	11.9	100.0	1232

Respondents with no work status had higher level of consistent responses (88.5 percent) in comparison with respondents with work

status(81percent). Respondents who had exposure to mass media had comparatively higher level of consistent responses(87.3 percent) than those without any exposure to mass media (85.7 percent). A noteworthy amount of difference in the inconsistency, more than double, was marked between the response of contraceptive users (8.1percent) and non users (19.4 percent). Non-Muslim respondents (88.1 percent) showed a slightly higher proportion of consistency in their response in comparison with Muslims (86.7).

### **3.10 Planning status of last birth**

There are two ways of estimating levels of unwanted fertility from the BDHS data. One is based on responses to a question as to whether each birth in the five years before the survey was planned (wanted then), mistimed (wanted but at a later time), or unwanted (wanted no more children). These data are likely to result in underestimates of unplanned childbearing since women may rationalize unplanned births and declare them as planned once they are born. Another way of measuring unwanted fertility uses the data on ideal family size to calculate what the total fertility rate would be if all unwanted births were avoided. This measure may also suffer from underestimation to the extent that women are unwilling to report an ideal family size lower than their actual family size. Data using these two approaches are presented below.

Figure 3.5 Percentage distribution of births by planning status

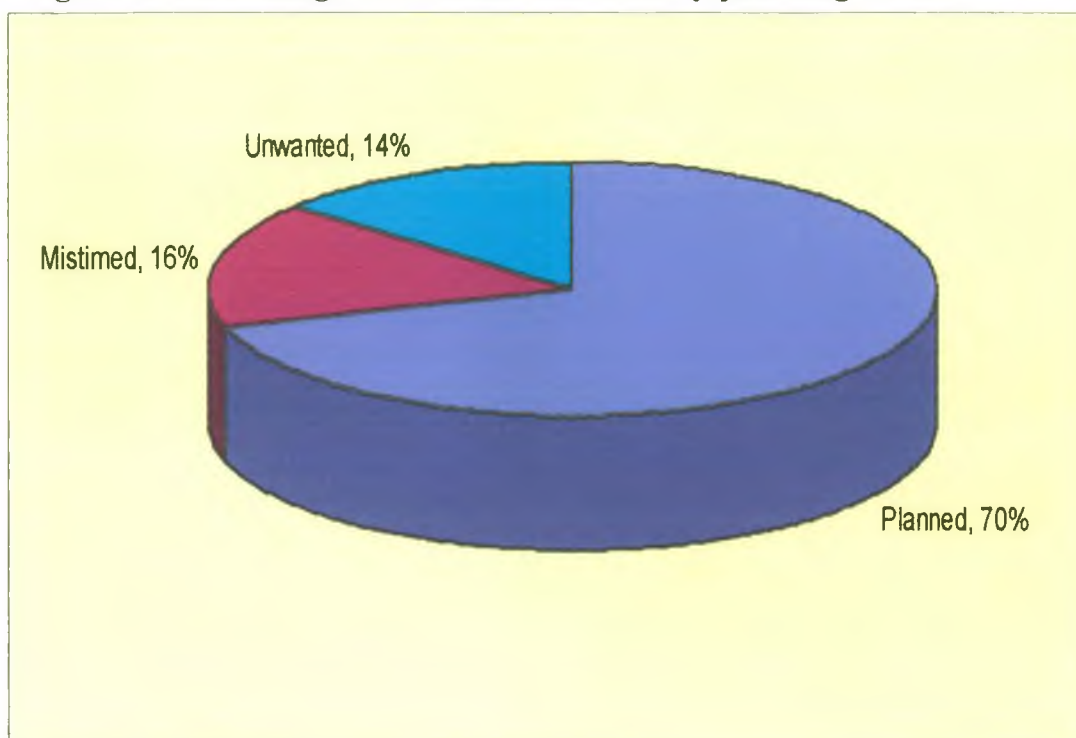


Table 3.10 Percent distribution of births in the five years preceding the survey, by fertility planning status, according to birth order and mother's age at birth, Bangladesh 2004

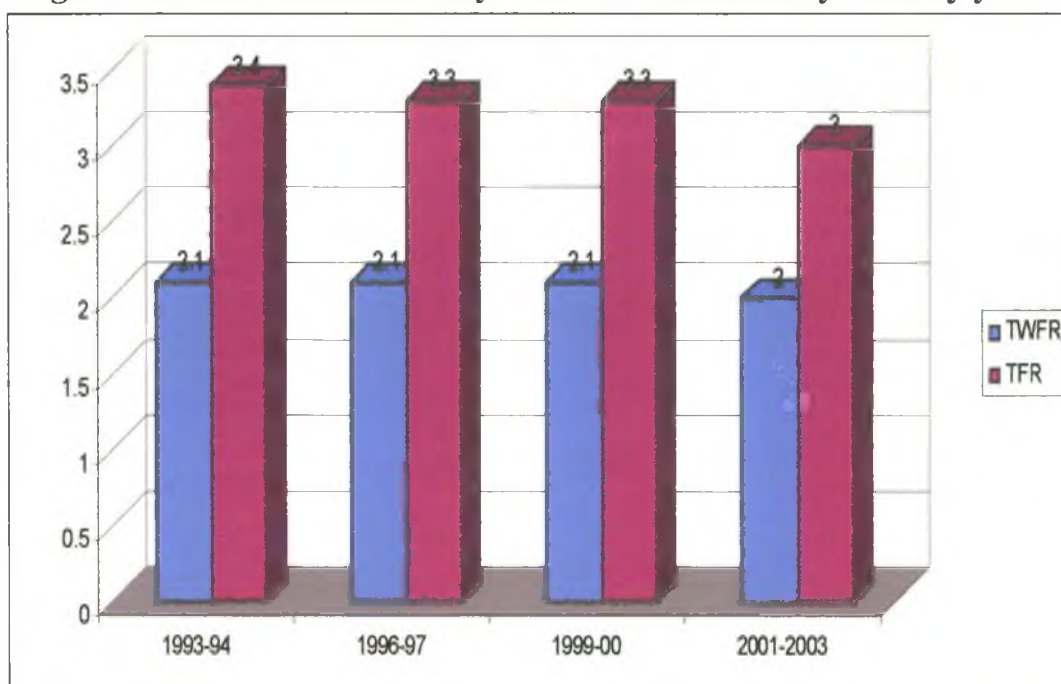
Birth order and mother's age at birth	Planning status of birth			Total	Number of births
	Planned	Mistimed	Unwanted		
<b>Birth order</b>					
1	85.6	14.3	0.1	100.0	2302
2	74.6	23.9	1.5	100.0	1952
3	66.1	16.8	17.1	100.0	1378
4+	52.5	9.2	38.3	100.0	2094
<b>Mother's age at birth</b>					
<20	78.8	20.3	0.9	100.0	2499
20-24	73.7	18.6	7.7	100.0	2466
25-29	65.6	11.6	22.8	100.0	1494
30-34	56.2	7.1	36.7	100.0	809
35-39	48.2	4.9	46.9	100.0	324
40-44	43.0	4.5	52.5	100.0	102
<b>Total</b>	<b>70.4</b>	<b>15.8</b>	<b>13.8</b>	<b>100.0</b>	<b>7725</b>

Table 3.10 shows the percent distribution of births in the five years before the survey by whether the birth was wanted by the mother then, wanted later, or

not wanted. Overall, about one-third of births in Bangladesh can be considered unplanned—16 percent mistimed (wanted later) and 14 percent unwanted (Figure 3.4). The proportion of unplanned births increases directly with the birth order of the child. Half of all fourth and higher order births were unplanned, with 38 percent being unwanted at the time of conception. Similarly, a much larger proportion of births to older women are found to be unplanned—many more than half of the births among women in their late thirties and forties.

Figure 3.5 presents “wanted” fertility rates by years. The wanted fertility rate is calculated in the same manner as the total fertility rate, but unwanted births are excluded from the numerator. For this purpose, unwanted births are defined as those which exceed the number considered ideal by the respondent. This rate represents the level of fertility that would have prevailed in the three years preceding the survey if all unwanted births had been prevented. A comparison of the total wanted fertility rate and the actual fertility rate suggests the potential demographic impact of the elimination of unwanted births.

**Figure 3.6 Total wanted fertility rates and total fertility rates by year**



The wanted fertility rate in Bangladesh as a whole is 2.0 births per woman, 1 child less than the observed total fertility rate of 3.0. This implies that the total fertility rate is 50 percent higher than it would be if unwanted births were avoided. The gap between the wanted and observed total fertility rates is slightly larger among rural than among urban women. There is also a larger gap between the wanted and observed fertility rates for women with no education or only primary education than for those with secondary education. It is interesting to note that if women's fertility desires could be met, the total fertility rate in all divisions except Chittagong and Sylhet would be below the replacement level of 2.1 children per woman.

## CHAPTER FOUR

### DESIRED FAMILY SIZE AND FERTILITY IN BANGLADESH

#### 4.1 Introduction

Family size is defined as the number of living children a woman has at any particular time. When stating a preference for a family of a particular size, a couple may have a specific sex composition in mind (e.g. two sons to at least one son and one daughter). Desired family size can take many forms. Within the context of a particular number of total children desired, parents may desire at least one child of each sex, a minimum number of children of a particular sex, or appropriately equal numbers of sons and daughters . Thus couples may continue child bearing beyond their desired family size in order to achieve a favorable number to distribution of sons and daughters (Vaessen et. al., 1983).

In Bangladesh, son preference is pervasive, as is sharply evident by higher female mortality among children (Madigan, 1957; Shettles 1958). This reversal has been linked to preferential treatment of boys in diet and provision of health care, among other factors (Chen, Hug and D'Souza, 1981; D'Souza and chen, 1980; Bhuiya, 1989). Repetto's (1972) work on Bangladesh provides support for the risk hypothesis. But Bairagi and Langsten (1986), in a study of Companiganj in rural Bangladesh, concluded that the negative risk effect on fertility was swamped by the positive effect of son preference: couples who had no sons,

planned to continue childbearing longer, practiced contraception less and had somewhat higher subsequent fertility than couples with one or more sons. In both of these studies, the level of contraceptive prevalence in the population was very low. In a hypothetical situation of perfect control of reproduction, Sheps (1963) demonstrated that if all couples desired a minimum of two sons, families would average 3.88 children, whereas if all couples desired at least one son and one daughter, the average would be 3.00 children. Other things being equal, the higher the preference for one sex over the other, the higher the average family size. Coombs (1979) in Taiwan showed that Couples with more daughters than sons had higher fertility in a four-year prospective study. Using World Fertility Survey data, Park (1983) found similar results in South Korea. These studies suggest that in a society with a strong preference for sons, couples with more daughters continue childbearing longer than those with more sons. But not all studies support this generalization. De Tray (1980), analyzing data for Pakistan, found that couples did not necessarily translate their stated intentions (preferences) into actual behavior, in other words, stated desired family size and composition did not always affect actual fertility. Using data from Jordan, India and Bangladesh, Repetto (1972) also concluded that fertility decisions are less influenced by preference for one sex over the other than by the economic costs and benefits associated with children per se. His analysis, suggests that economic considerations may lead those couples who already have a higher proportion of sons to continue childbearing because they anticipate higher income proportion and feel less demographic pressure compared with couples who have a higher proportion of daughters. By the same token, couples with a higher proportion of daughters may tend to restrict fertility earlier in their reproductive lives.

Earlier we stated that desired family size could take many forms. The importance of studying desired family size derives from the fact that these preferences are potentially very important in shaping the fertility of the society. Information on

reproduction attitudes and motivation may be helpful in understanding the factors that affect fertility. One school of demographic thought believes that desired family size are fixed at the time of marriage and retained as a goal throughout the fertility career. Another school, however, argues that the actual childbearing experience coupled with other variable circumstances will lead to a continuous revision of desired family size as the woman advances in her fertility career. Stated desired family size are, however, relevant to policy in the sense that data on preferences enable planners to assess the relative need of subpopulations for family planning services. The assumption is that most family planning programs seek to enable individuals to freely implement their preferences and avoid unwanted births (Pullum, 1980).

In the backdrop of above senerio, this chapter attempts to analyze the family size in Bangladesh and its relation with fertility behaviour. Both actual and desired family size were considered. The actual family size was measured by the average number of children ever born (CEB).

#### **4.2 Desired family size and its differentials**

Family size is affected by a number of socio-psychological and economic variables besides the biological capacity of reproduction. Table 4.1 presents the differentials in actual family size (i.e. mean number of CEB) and mean desired family size by different demographic and socio-economic characteristics.

The results indicate that in Bangladesh the desired family size is lower than the actual family size. This may be related to desire for one sex of children over other. Overall, the desired family size is 2.4 children but the average number of

CEB is 2.9. That means, though women have higher number of CEB but their desires are less in number of children.

**Table 4.1: Average number of CEB and Average number of desired family size by background Characteristics, BDHS 2004**

<b>Background characteristics</b>	<b>Average number of CEB</b>	<b>Average number of Desired family size</b>	<b>Difference between in actual and desired family size</b>
<b>Overall</b>	<b>2.94</b>	<b>2.41</b>	<b>0.53</b>
<b>Respondent's age</b>			
<20	.65	2.26	-1.61
20-29	2.12	2.34	-0.22
30-39	3.72	2.45	1.27
40-49	5.06	2.61	2.45
<b>Age at marriage</b>			
<15	3.42	2.46	0.96
15-19	2.51	2.38	0.13
20-24	1.68	2.20	-0.52
25+	1.40	2.09	-0.69
<b>Respondent's education</b>			
No education	3.84	2.55	1.29
Primary	2.99	2.43	0.56
Secondary	1.88	2.26	-0.38
Higher	1.39	2.06	-0.67
<b>Respondent's husband education</b>			
No education	3.43	2.51	0.92
Primary	3.02	2.46	0.56
Secondary	2.58	2.34	0.24
Higher	2.10	2.17	-0.07
<b>Place of residence</b>			
Urban	2.68	2.30	0.38
Rural	3.07	2.46	0.61

(Continued---)

(Continued---)

<b>Region</b>			
Barisal	3.08	2.39	0.69
Chittagong	3.22	2.66	0.56
Dhaka	2.87	2.37	0.5
Khulna	2.57	2.21	0.36
Rajshahi	2.74	2.27	0.47
Sylhet	3.39	2.71	0.68
<b>Wealth index</b>			
Lowest index	3.26	2.51	0.75
Middle index	2.93	2.39	0.54
Highest index	2.49	2.29	0.2
<b>Sex of household head</b>			
Male	2.95	2.40	0.45
Female	2.83	2.43	0.40
<b>Religion</b>			
Muslim	2.97	2.43	0.54
Non-muslim	2.69	2.24	0.45
<b>Contraceptive use</b>			
No	2.73	2.48	0.25
Yes	3.11	2.34	0.77

For all the selected socio-economic and demographic variables there is a considerable difference between mean number of CEB and mean desired family size. It has been observed that both the mean number of CEB and mean desired family size is highest for women aged 40-49 years. While the desired family size for the women aged 40-49 is 2.6 children, their actual family size is 5.1 children which is almost two times higher than the desired family size. The highest desire and actual family size in the highest age group may be due to the old age security. We observed that there is a positive association between age of the respondent and mean number of CEB, mean desired family size as well as the difference between actual and desired family size. It is found that as the respondent's age increase the others increase as well. As expected, both the desired family size and the average number of children ever born decreases with the age at marriage. The difference between desired family size and actual family size also decreases with the increase in age at marriage.

Education is an important variable influencing the actual and desired family size. There is a negative association between the mean number of CEB and educational levels of the respondents and their husbands. And also a negative association is observed between the mean desired family size and educational level, as education levels increases the mean number of CEB and mean desired family size decreases. As the level of education of the respondent and respondent's husband become higher, the difference between actual and desired family size become lower. From the perspective of place of residence, in comparison with respondents of urban areas, rural ones had greater number of both mean number of CEB and desired family size. The difference between them is higher for rural respondents in relation to urban respondents. Desired family size and the average number of CEB vary across the region. It was found that the highest number of both mean number of CEB and desired family size was highest for Sylhet, whereas in Khulna it was the lowest.

A negative relation was observed between wealth index and the mean number of both CEB and desired family size; the higher the wealth index, the lower the mean number of the CEB and desired family size. Negative relation exist between wealth index and difference of them. In comparison with female headed families, male headed families had greater mean number of CEB, whereas the mean number of desired family size was lower. For the difference the same trend is found. Muslim respondents had more mean number of CEB, desired family size and difference between them than non-Muslims. Between the contraceptive users and non-users, the first groups had greater mean number of CEB but lower mean number of desired family size than the second group. Contraceptive users have greater the difference between them in comparison with non contraceptive users.

### **4.3 Son preferences and desire for additional children.**

Cross tabulation of data pertaining to the desire for additional children with the number of living sons and living children was done for women and examined to see whether the composition of surviving children influences future fertility intentions are presented in this section.

From Table 4.2 and 4.3, we observed that within any parity, the combinations of sons and daughters associated with a relatively higher percentage of respondents who did not want more children was interpreted to mean that the respondent had achieved their preferred sex composition of children. If son preference were to affect the desire for additional children then, within any parity, those with one or more sons would be more likely not to want more children as compared to those who did not have any sons. Conversely, if the desire for a balanced sex composition was to affect fertility the within given parity, the respondents who had either all sons or all daughters would more likely to want additional children as compared to those who had children of both sexes (Nag, 1992; Arnold, 1992; Kondel, 1976; Malhi, 1993). Table 4.2. Presents a distribution of female respondents who did not want additional children by the number of living children and living sons.

**Table 4.2 Percent respondents not wanting additional children by number of living children and living sons**

Number of living children	Number of living sons	Women	
		%	N
0		4.3	53
1	0	18.1	178
	1	22.3	231
	<b>Sub-total</b>	<b>20.2</b>	<b>409</b>
2	0	53.1	263
	1	81.3	1046
	2	71.9	470
	<b>Sub-total</b>	<b>73.1</b>	<b>1779</b>
3+	0	73.9	232
	1	92.0	1121
	2	97.6	1653
	3+	97.0	1418
		<b>Sub-total</b>	<b>94.4</b>
	<b>Grand Total</b>	<b>64.3</b>	<b>6665</b>

**Table 4.3 Percent respondents desiring additional sons and daughters by number of living children and living sons**

Number of living children	Number of living sons	Women	
		%	N
0		95.7	1169
1	0	81.9	807
	1	77.7	805
	<b>Sub-total</b>	<b>79.8</b>	<b>1612</b>
2	0	46.9	232
	1	18.7	240
	2	28.1	184
	<b>Sub-total</b>	<b>26.9</b>	<b>656</b>
3+	0	26.1	82
	1	8.0	97
	2	2.4	40
	3+	3.0	44
		<b>Sub-total</b>	<b>5.6</b>
	<b>Grand Total</b>	<b>35.7</b>	<b>3700</b>

We observed from Table 4.2 that the women, who had one daughter with one living child, very small percent, did not want additional children. That means, they wanted to increase family size. But it decreases with the increase in the number of sons. A very strong son preference in women is observed in this table. Generally, the percentage of respondents who did not want additional children increased with the number of surviving sons.

#### **4.4 Variations in mean number of living male children and mean desired male children**

A strong son preference is evident from the foregoing analysis. In this section attempt is made to observe the differential in mean number of living male children and mean desired male children by number of living children and selected socio-demographic characteristics. Such attempt is made by analyzing data in Table 4.4.

The mean number of desired male children may be determined by personal, social and physiological factors. Overall for one living children, mean number of desired family size (0.89) was lower than the mean number of living male children (0.51). The differences between the mean number of living male children and mean desired male children were minimal for two living children. Overall, mean number of living male children was 1.07 but that of desired male children was 1.05. Practically, in these two cases a strong son preference was observed in Bangladesh. Overall for three or more, mean desired male children (1.27) is very much lower than the mean number of living male children (2.08).

For two and three or more living children, mean number of living male children were positively associated with age of the respondents. That is, as age of the respondent increases, the mean number of living male children increases. For one living children, a curvilinear relationship was observed between the respondent's

age and the mean number of living male children .The highest mean numbers of living male children were observed among women for age group 40-49 for three cases. For one living children, a positive relationship was observed between the respondent's age and the mean number of desired male children without age group <20, that is, the more the respondent's age, the more the mean number of desired male children. For two and three or more living children, there is a negative association between age of the respondent and mean number of desired male children is observed. That means mean desired family size decreases with the increase in respondent's age except for women aged 40-49.

**Table 4.4 Average number of Living male children and Average number of desired male children, by number of living children and background characteristics, BDHS 2004**

Background characteristics	For one living children		For two living children		For three or more living children	
	Mean number of living male children	Mean number of desired male children	Mean number of living male children	Mean number of desired male children	Mean number of living male children	Mean number of desired male children
<b>Overall</b>	.51	.89	1.07	1.05	2.08	1.27
<b>Respondent's age</b>						
<20	.49	.92	1.01	1.23	1.00	1.50
20-29	.52	.84	1.05	1.06	1.70	1.28
30-39	.49	.90	1.11	.99	2.02	1.25
40-49	.60	1.09	1.13	1.00	2.40	1.30
<b>Age at marriage</b>						
<15	.51	.93	1.08	1.07	2.15	1.28
15-19	.52	.87	1.07	1.02	1.98	1.26
20-24	.51	.79	1.06	1.04	1.73	1.16
25+	.47	.74	1.14	.86	1.69	1.30

(Continued---)

(Continued---)

<b>Respondent's education</b>						
No education	.55	.98	1.06	1.09	2.17	1.32
Primary	.51	.95	1.08	1.07	2.09	1.26
Secondary	.50	.83	1.09	1.00	1.78	1.14
Higher	.52	.74	1.06	.92	1.53	1.04
<b>Place of residence</b>						
Urban	.52	.83	1.06	1.01	1.96	1.21
Rural	.51	.92	1.08	1.07	2.14	1.30
<b>Region</b>						
Barisal	.52	.82	1.07	1.03	2.10	1.29
Chittagong	.57	.90	1.07	1.14	2.19	1.38
Dhaka	.52	.87	1.09	1.05	1.98	1.28
Khulna	.49	.88	1.02	1.01	2.03	1.17
Rajshahi	.50	.84	1.11	.96	2.02	1.18
Sylhet	.46	1.12	1.04	1.26	2.23	1.34
<b>Wealth index</b>						
Lowest	.53	.98	1.06	1.09	2.12	1.34
Middle	.53	.87	1.07	1.05	2.13	1.26
Highest	.48	.81	1.08	.99	1.93	1.18
<b>Religion</b>						
Muslim	.51	.89	1.06	1.04	2.10	1.28
Non-muslim	.56	.88	1.13	1.06	1.89	1.20
<b>Contraceptive use</b>						
No	.50	.93	1.04	1.12	2.15	1.34
Yes	.53	.84	1.10	1.00	2.04	1.23

The mean number of living male children had a negative relation with the age at marriage except age group <15 for one living child and age group 25+ for two living children. A negative association remained between age at marriage and the mean number of living male children, since with increased age at marriage, the mean number of living male children fall down for respondents with three or more living children. The mean number of desired male children was negatively associated with the respondent's age at marriage for one living children and besides age at marriage group 25+ for three or more living children. But at the

same time it was also observed that the relation between mean number of desired male children and age at marriage was curvilinear for two living children. Mean number of living male children was negatively associated with educational level for three or more children and except the higher education for one living children. It was found that with increased education status, the mean number of living male children increased except higher education for two living children.

We observed that the mean desired male children decreased with the increase of the education level. That means, there was a negative relationship between education level and mean number of desired male children for one, two and three or more living children. In respect of place of residence, the mean number of living male children of rural respondent's was less than that of urban ones for one living children. Rural respondents' had more the mean number of living male children than urban respondents for two and three or more living children.

In comparison with urban cases, rural respondents' had more the mean number of desired male children for one living children. Whereas the mean number of desired male children was vice-versa for two and three or more living children.

On the basis of regional data analysis, it was found that mean number of living male children was the highest in Chittagong(0.57) and lowest in Sylhet(0.46) for one living children, the highest in Rajshahi(1.11) and the lowest in Khulna (1.02) for two living children and the highest in Sylhet(2.23) and the lowest in Dhaka(1.98)for three or more living children. Whereas the mean number of desired male children were highest in Sylhet(1.12) and lowest in Barishal for one living children, highest in Sylhet(1.26) and the lowest in Rajshahi(0.96)' for two living children and the highest in Chittagong(1.38) and the lowest in Khulna(1.17) for three or more living children .

According to the data analysis on wealth index, a positive relation was obvious between wealth index and the mean number of living male children for one and

two living male children. There was a curvilinear relationship between wealth index status and the mean number of living male children for three or more living male children. Whereas there was a negative relationship with wealth index status and the mean number of desired male children for one, two and three or more living children. Through analysis of the data on religion it was found that non- Muslim respondents had more mean number of living male children than Muslims for one and two living children. Whereas the mean number of living male children was vice-versa for three or more living children. Muslim respondent's had relatively more the mean number of desired male children than the non-Muslim respondents for one and three or more living children. But for two living children, it was reversed. The contraceptive users had greater mean number of living male children than contraceptive non-users for one and two living children. Whereas vice versa for three or more living children. Between the contraceptive users and non-users, the second group had greater mean number of desired male children than the first group for one, two and three or more living children.

#### **4.5 Determinants of desired family size**

The results of the multiple regression analysis are presented in Table 4.6. The regression analysis indicates that desired number of children is influenced highly significantly by the explanatory variables under study. However, the variables only explain around 10% variation in desired number of children. It is observed that with the change of place of residence, the desired number of children is also changed significantly. Both the variables are more in the same direction. Both Khulna and Rajshahi have highly negative significant impact on desired number of children; both the variables change in the opposite direction. Again both Chittagong and Sylhet have highly positive significant affect on desired number of children; both the variables change in the same direction. Respondent's

education in single years has also strong significant negative effect on desired number of children. Electricity has significant negative impact on desired number of children. Religion is also an important factor to influence the desired number of children. Significant negative impact is observed in desired number of children when work status increases. We observed that husband's education in single years has negative significant impact on desired number of children. That means, if husband's education in single years is increased, the desired number of children is decreased. Wealth index has no significant effect on desired number of children.

**Table 4.5 Results of the multiple regression analysis in prediction of desired family size on selected socio-economic variables**

Explanatory variable	Unstandardized Coefficients		Standardized Coefficients	Sig.
	B	Std. Error	Beta	
(Constant)	2.657	.044		.000
Place of residence	8.835E-02*	.018	.049	.000
<b>Region</b>				
Barisal	2.408E-02	.030	.008	.425
Chittagong	.293*	.020	.148	.000
Khulna	-.165*	.023	-.072	.000
Rajshahi	-.168*	.018	-.099	.000
Sylhet	.325*	.032	.100	.000
Respondent's education in single years	-3.038E-02*	.002	-.152	.000
Has electricity	-5.671E-02**	.019	-.037	.002
Religion	-.216*	.023	-.087	.000
Work status	-3.338E-02***	.017	-.019	.046
Husbands education in single years	-4.591E-03***	.002	-.028	.030
<b>Wealth index</b>				
Middle index	6.452E-03	.020	.003	.745
Highest index	-2.181E-02	.022	-.014	.316

**R square=.102**

Level of significance: \*p<.00001 \*\*p<.01 & \*\*\*p<.05

#### **4.6 Determinants of children ever born**

The multiple regression analysis was applied to investigate the effects of the selected explanatory variables on the dependent variable (children ever born). Table 4.6 shows the analysis. The regression model explains 17% of the variation in the number of children ever born. Place of residence has positively highly significant impact on CEB. So we may say that the number of CEB changed in the same direction with the change of place of residence. Both Khulna and Rajshahi have negatively high significant in relation with the number of children ever born. Both the variables change in the opposite direction. Barisal, Chittagong and Sylhet have also highly positive significant impact on children ever born. The variables change in the same direction. Respondent's education in single years has negatively strong effect on the number of children ever born. That means, as respondent's education in single years was increased, the number of children ever born was decreased. With electricity a highly significant negative impact is observed on the number of children ever born. Religion also shows negative significant effect on number of children ever born. Work status has significant positive effect on children ever born. The results also indicated that husband's education in single years has great positive impact on the number of children ever born. That means, husband with higher levels of education tends to have higher children. The positively significant impact of highest index is present on the number of children ever born.

**Table 4.6 Results of the multiple regression analysis in prediction of children ever born on selected socio-economic variables**

Explanatory variable	Unstandardized Coefficients		Standardized Coefficients	Sig.
	B	Std. Error	Beta	
(Constant)	3.571	.123		.000
Place of residence	.141**	.050	.026	.005
<b>Region</b>				
Barisal	.399*	.085	.043	.000
Chittagong	.385*	.057	.066	.000
Khulna	-.254*	.065	-.037	.000
Rajshahi	-.257*	.052	-.051	.000
Sylhet	.215***	.084	.023	.011
Respondent's education in single years	-.275*	.007	-.461	.000
Has electricity	-.200*	.052	-.044	.000
Religion	-.212**	.065	-.028	.001
Work status	9.874E-02***	.047	.018	.035
Husbands education in single years	4.323E-02*	.006	.087	.000
<b>Wealth index</b>				
Middle index	.101	.055	.018	.067
Highest index	.374***	.061	.082	.032
<b>R square=.172</b>				

Level of significance: p<.00001 \*\* p<.01 & \*\*\* p<.05

## CHAPTER FIVE

### SEX PREFERENCE AND REPRODUCTIVE BEHAVIOUR IN BANGLADESH

#### 5.1 Introduction

Although sex preference in having children has been well documented (Arnold, 1985; Williamson, 1978; Stinner & Mader, 1975; Kent & Larson, 1982), its effect on fertility and family planning is less certain. While Repetto (1972) reported no effect of son preference on fertility in Bangladesh, Park (1978) reported a moderate effect in Korea in the aftermath of a vigorous national family planning programme. Similarly, conflicting trends have been reported by investigators examining the influence of sex composition on desire for additional children in Thailand (Prachuabmoh, 1967; Knodel & Pitaktepsombati, 1973). Generally, cross-national analyses of the effect of sex composition on fertility and family planning are also inconsistent in their findings both in developed and developing nations (Stinner & Mader, 1975; Coombs, 1973, unpublished).

In higher fertility societies, more couples can fulfil their desired sex composition within the desired number of children. During the course of fertility transition, society moves towards norm of smaller family. When desired family size declines, the preferred number of children of each sex also declines. But, if there is strong preference of couples for child of particular sex, there will be differential rate of decline in family size norm and the decline in desired number of children of preferred sex. Also, as the desired

family size declines, the proportion of couples fulfilling their desired sex composition within the reduced number limit also declines. Then there creates a situation in which not all couples fulfilling their desired sex composition of children within their desired number limit. In this situation, these couples either have to give up for the desired sex composition or continue childbearing to achieve the desired sex composition. Then there will be a trade-off between number and preferred sex composition of the children and an ample number of socio-cultural and economic variables interplay there to decide on either side. This interaction shapes the demand for children in the society. Hence, sex preference for children is regarded as one of the integral component of overall demand for children (Parsuraman, et al., 1999).

In patriarchal, patrilineal and patrilocal societies like Bangladesh, males are valued more than females. Sons and daughters are differently valued right from their birth. There are three major reasons for which sons are valued more than daughters. The first reason is economic utility. Sons and daughters both are equally important as family labour in agrarian society. Some works are gender specific. For example, males do ploughing and females do rice plantation. Therefore parents may like to have children of both sexes to maintain the balance in labour force when they grow up. Daughters help excessively in household chores whereas sons help in outside work. Since daughters go to their husband's family after marriage, their help is not long lasting as compared to sons. Sons, on the other hand, are supposed to carry on the family occupation and provide economic support to the family. So they are prized as assets. In Bangladesh, most prevailing old age support mechanism is based on intergenerational property transfer from parents to sons, especially in the form of land. It is social norm that sons have to look after their parents in their old age. The cost of wedding (due to dowry payment) also reduces economic value of daughters. Daughters are often considered as others property. Hence the economic value of sons is regarded to be greater than that of daughters.

The second reason is the socio-cultural utility. Sons are the carriers of the family name and expected to provide additional status of the family in the society. Women having sons get emotional support as well as higher status in the family. Therefore, sons are valued more than daughters. The third reason is the religious importance. In Muslim culture, sons are necessary for continuation of clan as well for performing various religious sacraments such as mourning the parents' death, salvation of their soul etc. Daughters are also preferred to some extent because of the religious merit, which people think to achieve by giving away the daughter in marriage (Kanya Daan). Still, sons are preferred more than daughters from religious perspective (Mutharayappa, et al., 1997; Niraula and Morgan, 1995).

In most of the developing countries, where fertility transition is taking place, wanted fertility level is lower than actual one. Studies explaining the 'unwanted' part of the fertility have regarded sex preference of child as one of its reasons (Kulkarni and Choe, 1998). Studies show that, son preference exists in many societies of East Asia, North Africa, the Middle East and South Asia. A strong preference for children of one sex can be a constraint on fertility decline if couples who have achieved their preferred family size continue childbearing until they have achieved their desired number of sons or daughters (Mutharayappa et al., 1997). But in spite of strong son preference, fertility has declined to very low level in China and Korea. The effect of son preference in low fertility countries is reflected as imbalance of sex ratio at birth. Hence it is desirable to quantify the effect of sex preference on fertility and to infer some guidelines for its possible reduction.

In this chapter, the levels and the existence of sex preference in Bangladesh will be examined by using recent DHS data. Variations and determinants in sex preference by different socio-demographic characteristics will be discussed. Finally, possible effect of sex preference on modern contraceptive use and on total fertility will also be estimated.

## 5.2 Levels of sex preference

The ideal number of boys is the variable, which can provide the information regarding the sex preference. In the BDHS respondents were asked, “What is your ideal number of sons?” Table 5.1 shows the ideal number of sons according to respondents’ response. The results indicate that 18 percent respondents showed no preference for son and the rest 82 percent expressed their preference for son of which 57 percent expect one ideal number of son, 24 percent want two ideal number of sons, one percent desire three ideal number of sons and only 0.2 percents like four or more ideal number of sons.

**Table 5.1 Percentage of currently married women for ideal number of sons**

<b>Ideal number of sons</b>	<b>Percentage of cases</b>
0	17.8
1	57.0
2	23.9
3	1.1
4 4+	.2
<b>Total</b>	<b>100.0</b>
<b>Number of cases</b>	<b>10226</b>

Table 5.2 presents the distribution of women by their ideal family size composition. The results indicate that for most Bangladeshi women, the ideal family consists of two Children – one boy and one girl. For example, nearly two-third (65 percent) of the respondents reported their ideal family size as 2, of which 64 percent said 1 son and 1 daughter as their preferred sex composition. Even those who preferred for 4 or more children (about 11 percent), most of them (9 percent) preferred equal number of son and daughter.

**Table 5.2 Percentage distribution of women by ideal family size composition**

No. and Sex of ideal family size	Percent	No. of women
<b>1 child</b>	<b>3.2</b>	<b>290</b>
0son	2.2	200
1son	1.0	90
<b>2 children</b>	<b>65.1</b>	<b>5934</b>
1 son, 1 daughter	64.3	5862
2 sons	0.7	61
2 daughters	0.1	11
<b>3 children</b>	<b>20.8</b>	<b>1896</b>
2 sons, 1 daughter	18.8	1718
1son, 2 daughters	1.9	170
3sons	0.1	8
<b>4 or more</b>	<b>10.9</b>	<b>998</b>
Equal no. of each sex	9.4	854
More sons than daughter	1.5	134
More daughter than sons	0.1	10
<b>Total</b>	<b>100.0</b>	<b>9118</b>

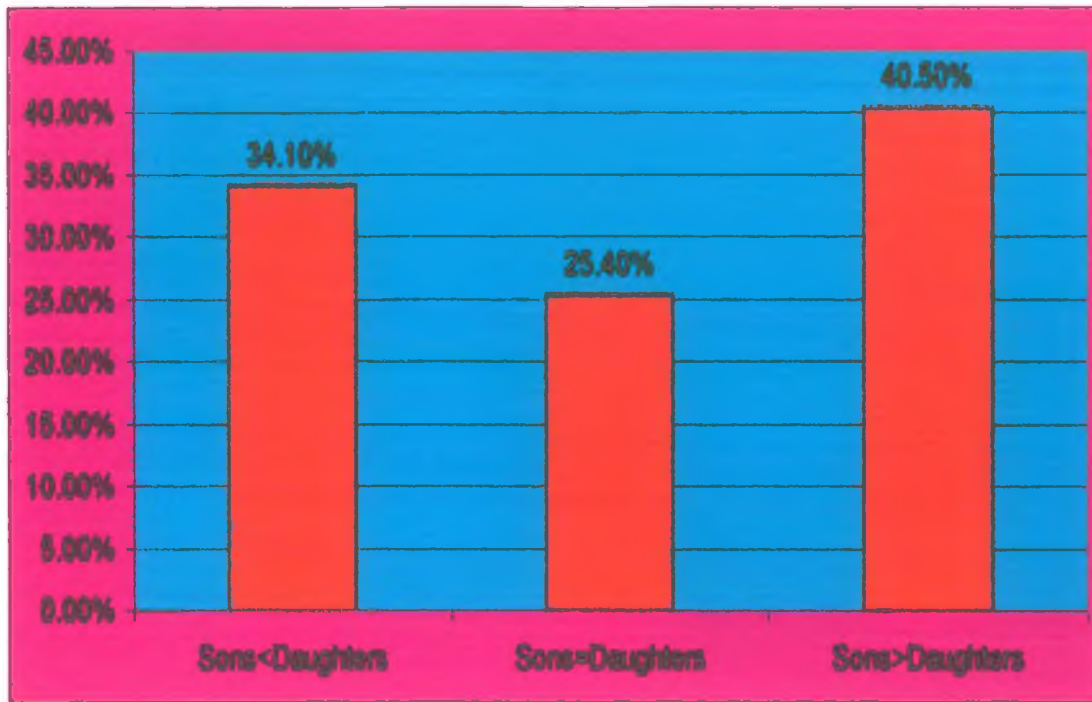
Historically, parents in Bangladesh have distinct preferences for the sex of children they would like to have. The most common types of preference are for sons over daughters, a balanced number of sons and daughters and at least one child of each sex (Arnold, 1992, 1992, 1987; United Nations, 1985). In Table 5.3 gender preference attitudes are measured by relating women's stated desire to have no additional child to the total number and number of living sons. Within each parity, son preference would be indicated by a steady increase in the percentage who wants no more children as the number of living sons increases. An inverse U-shaped relationship is indicative of preference for a balance number of sons and daughters.

**Table 5.3 Percentage of currently married women who want no more children by number of living children and number of living sons, Bangladesh 2004**

<b>Number of living children and son</b>	<b>Barisal</b>	<b>Chittagong</b>	<b>Dhaka</b>	<b>Khulna</b>	<b>Rajshahi</b>	<b>Sylhet</b>	<b>National</b>
<b>1 Living Child</b>							
0 sons	11.1	16.2	16.9	20.1	18.5	14.8	17.3
1 son	19.7	15.0	21.8	18.5	22.6	24.4	20.4
<b>2 Living Children</b>							
0 sons	59.1	25.3	50.3	71.2	63.8	34.6	52.5
1 son	75.9	61.7	80.2	88.3	90.1	53.6	80.0
2 sons	70.6	49.5	74.5	73.2	76.8	55.6	70.6
<b>3 Living Children</b>							
0 sons	62.5	50.0	63.5	100.0	70.0	72.7	65.1
1 son	92.5	82.4	86.3	96.7	94.6	75.0	89.4
2 sons	97.8	95.0	94.2	100.0	99.1	87.2	96.2
3 sons	100.0	75.0	91.7	88.0	82.8	90.9	87.3

As the results in Table 5.3 show that at parity one the large majority of women (more than 79 percent) want to continue child-bearing irrespective of the sex of their child. By the second parity, a balanced preference of at least one son is emerged and it is most strong in low fertility region Khulna and Rajshahi. The same pattern of son preference exists at higher parities also. This finding has important policy implication. By eliminating or weakening sons preference, fertility could further be lowered in all the region of Bangladesh.

**Figure 5.1 Sex preferences among currently married women by comparing living number of sons and daughters**



### 5.3 Future fertility desire and sex preference

The sex preference for children is examined on the basis of living children of couples. Number of living children is considered suitable for analysis because couples' preference for number and sex composition is based on the number of living children rather than the total children ever born. Wantedness of next child can explain the differential in the preference for children of different sex. For analysis, currently married women were classified into two groups: one consisting of those who do not want any more children and the other who want more children. Their wantedness status of next child is analysed by using average number of living sons they have. In absence of sex preference, for certain family size, the average number of sons in the group who do not want any more children and the average number of sons in the group who want more children is expected to be almost same. But, Table-5.4 shows that there is significant difference (independent sample F-test) in the average

number of sons between these two groups of women for different number of living children. For example, among the couples with three living children, those couples who do not want next child are having 1.60 sons on average but those couples who want more children are having only 1.13 sons on average. The wantedness status of next child is further analyzed by taking number of living sons. From Table-5.5, it is evident that, the wantedness status of next child is significantly associated with the number of living sons for all values of total number of living children. The association is strongest for three children. In this group also, the most preferable sex composition can be inferred to be two sons and a daughter (96.8% do not want more child). This result is in the same line with the result obtained from other studies (Niraula, 1995). Maximum percentage of women having two sons reported that they do not want to go for next child. This characteristic is found true for all possible sex compositions of living children. It indicates not only the preference for sons, but for two sons.

Around doubles times as many women want to continue childbearing if they have two daughters only than if they have two sons only. Substantial proportion of women want next child after having sons only (28.2% for two sons; 12.2% for three sons). Their intention to go for next child may be for daughter. This indicates preference for both sexes to some extent.

The trade-off between the number and sex composition of children due to greater preference for sons can also be studied. Proportion of women who want next child if they have no sons is declining as the number of living children increases (47.2% for two children; and 17.1% for five or more children). Hence the increasing 'number' of children added at each parity does affect negatively the desire of having certain number of sons.

**Table 5.4 Wantedness status of next child and average number of sons by number of living children (Currently married women having at least one living child)**

Number of living children	Do not want next child		Want next child		F
	Average number of sons	Number of women	Average number of sons	Number of women	
One	0.57	404	0.50	1612	5.894*
Two	1.12	1765	0.93	656	37.825**
Three	1.60	1722	1.13	182	56.891**
Four	2.02	1218	1.38	58	23.444**
Five or more	2.86	1455	1.43	23	24.464**
<b>Total</b>	<b>1.76</b>	<b>6564</b>	<b>0.68</b>	<b>2531</b>	<b>1896.484**</b>

Level of significance: p<.02      \*\*p<0.0001

**Table 5.5 Wantedness status of next child by number of sons for different number of living children (Currently married women having at least one living child)**

Number of living children	Number of living sons	Want next child(Percentage)		$\chi^2$	Contingency coefficient	Total number of women
		N0	Yes			
One	0	17.8	82.2	5.883*	0.054*	982
	1	22.1	77.9			1034
<b>Total</b>		<b>20.0</b>	<b>80.</b>			<b>2016</b>
Two	0	52.8	47.2	145.180**	0.238**	492
	1	81.2	18.8			1277
	2	81.9	18.1			652
<b>Total</b>		<b>72.9</b>	<b>27.1</b>			<b>2421</b>
Three	0	70.1	29.9	150.893**	0.305**	184
	1	89.2	10.8			695
	2	96.8	3.2			812
	3	87.8	12.2			213
<b>Total</b>		<b>90.4</b>	<b>9.6</b>			<b>1904</b>
Four	0	77.0	23.0	79.788**	0.243**	87
	1	94.6	5.4			297
	2	98.4	1.6			510
	3+	96.3	3.7			382
<b>Total</b>		<b>95.5</b>	<b>4.5</b>			<b>1276</b>
Five or more	0	82.9	17.1	73.221**	0.217**	41
	1	97.2	2.8			217
	2	99.3	0.7			360
	3+	98.5	1.5			860
<b>Total</b>		<b>98.4</b>	<b>1.6</b>			<b>1478</b>
<b>Grand total</b>		<b>72.2</b>	<b>27.8</b>	<b>1954.753**</b>	<b>0.421**</b>	<b>9095</b>

Level of significance: \*p<.02      \*\*p<0.0001

#### 5.4 Differentials of sex preference

Differentials of sex preference were analyzed in terms of preference for ideal number of sons considering women, socio-demographic characteristics as the explanatory variables. Mean ideal number of son increased with the age of respondents. Adolescents had the lowest mean ideal number of son (0.92), whereas the most elderly group of 40-49 had the highest mean ideal number of son (1.26). Age at marriage also shows differential effect on mean ideal number of sons. The lower the age at marriage, the higher the preferred mean ideal number of sons. Women's education shows strong negative effect on mean ideal number of sons i.e. mean ideal number of son decreased with the increase in the level of education. For example, women with no education preferred more than one (i.e. 1.22) sons, while women with higher level of education preferred less than one (0.79) sons. Husband's education also shows similar pattern of relationship with the sex preference. Urban respondents had comparatively lower mean ideal number of son (1.02) than rural respondents (1.11).

**Table 5.6 Mean ideal number of sons for currently married women by background characteristics, Bangladesh 2004.**

Background characteristics	Mean Ideal number of Son	Number of currently married women
<b>Overall</b>	<b>1.09</b>	<b>10226</b>
<b>Respondent's age</b>		
<20	.92	1661
20-29	1.03	3981
30-39	1.17	2874
40-49	1.26	1710
<b>Age at marriage</b>		
<15	1.14	5640
15-19	1.04	3998
20-24	.92	490
25+	.82	98

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<b>Respondent's education</b>		
No education	1.22	3957
Primary	1.12	3034
Secondary	.93	2678
Higher	.79	557
<b>Husband's education</b>		
No education	1.18	3780
Primary	1.11	2692
Secondary	1.03	2559
Higher	.88	1189
<b>Place of residence</b>		
Urban	1.02	2330
Rural	1.11	7896
<b>Region</b>		
Barisal	1.10	649
Chittagong	1.19	1791
Dhaka	1.10	3215
Khulna	1.02	1268
Rajshahi	1.01	2744
Sylhet	1.26	558
<b>Wealth index</b>		
Lowest	1.16	3961
Middle	1.08	4155
Highest	.97	2110
<b>Religion</b>		
Muslim	1.09	9181
Non-Muslim	1.07	1039
<b>Contraceptive use</b>		
No	1.10	4178
Yes	1.08	6047
<b>Exposure to mass media</b>		
No	1.24	3027
Yes	1.02	7199

So far region is concerned it was found Sylhet (1.26) and Chittagong (1.19) had the highest mean ideal number of son and Rajshahi (1.01), Khulna (1.02) had the lowest mean ideal number of son. Women with the lowest wealth i.e. poorest group had the highest mean ideal number of son (1.16), compared with the women with the highest amount of wealth (0.97). In

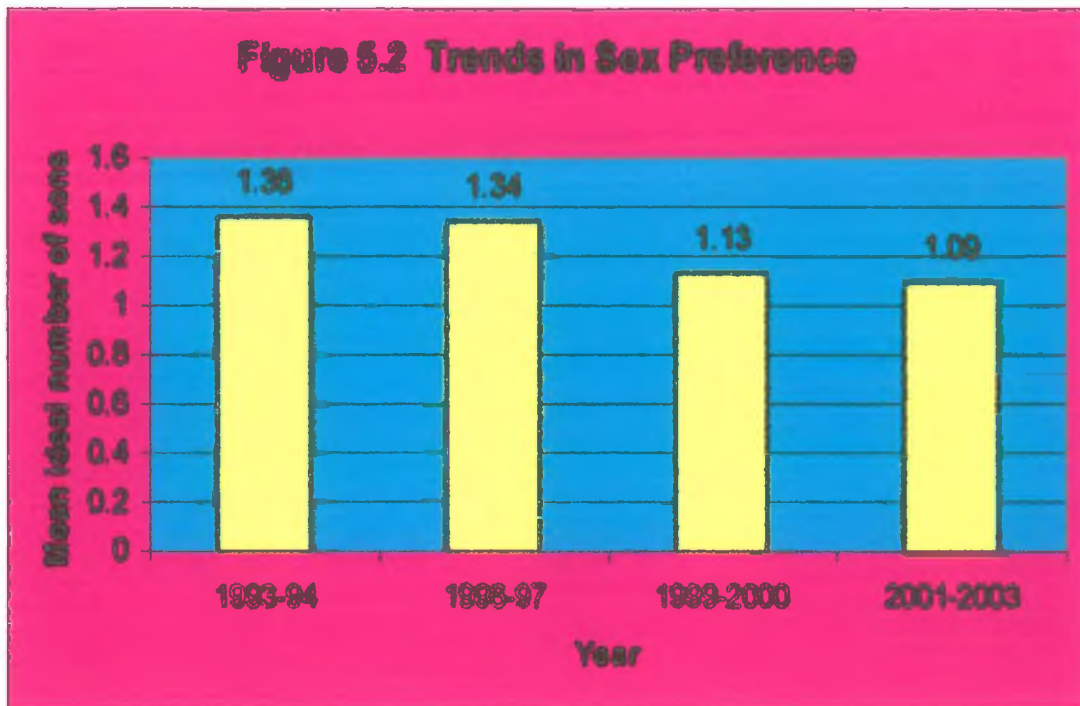
comparison with non- Muslims (1.07), Muslim had higher mean ideal number of son (1.09). Contraceptive users had slightly lower number of mean ideal number of sons than that of non users (1.08 vs. 1.10). Women who had exposure to mass media had smaller mean ideal number of son (1.02) than the ones who did not have any exposure to mass media (1.24).

### 5.5 Trends in sex preference

Figure 5.2 shows the overall trends in mean ideal number of sons since 1993 to 2004. Over the period, sex preference shows gradually decline. For instance, the mean ideal number of son declined from 1.36 in 1993 to 1.09 in 2004. Table 5.7 shows the trends in mean ideal number of son at different time by age of women. There is a gradual decline in the mean number sons for all ages. However, the decline is more pronounced at the higher ages than at younger ages.

**Table 5.7 Mean Ideal number of sons by age group, selected sources, Bangladesh, 1993-2004.**

Age group	1993-94 BDHS	1996-97 BDHS	1999-2000 BDHS	2004 BDHS
<b>Total</b>	<b>1.36</b>	<b>1.34</b>	<b>1.13</b>	<b>1.09</b>
15-19	1.22	1.20	.91	.92
20-24	1.26	1.27	1.00	.97
25-29	1.34	1.29	1.09	1.09
30-34	1.42	1.36	1.20	1.14
35-39	1.46	1.45	1.25	1.16
40-44	1.55	1.50	1.29	1.20
45-49	1.60	1.55	1.35	1.28



### 5.6 Determinants of sex preference

Results of logistic regression: In our study, the multivariate analysis has been performed to study the association of socio-demographic variables and the son preference. Samples for this analysis consists of all currently married women having at least one living child and stated no desire for next child. Women having more living sons than daughters are assigned value one and Zero otherwise. This makes the dependent variable dichotomous calling for binary logistic regression. Based on the literatures on the determinants of sex preference, this paper makes an attempt to study the variation of the above stated response variable with the following explanatory variables (Dalla Zuana, 2001; Leone et al. 2003; Clark 2000; Bhat, 2001; Ghosh, 2003): Exposure to media (Yes/ No), Geographic region (Barisal, Chittagong ,Dhaka, Khulna,Rajshahi and Sylhet ), Educational status (Illiterate, Primary, Secondary and Higher ), Working status (Yes/No), Religion (Muslim and Non-muslim), Type of place of residence (Rural and Urban), Standard of

wealth index (Lowest, Middle and Highest), Age of respondent, Odd family size and Number of living children. Working status of respondents is used as explanatory variable to study the difference in son preference between women working and non-working. Standard of wealth index is used as proxy of economic status of respondents. To study the difference in response variable among Geographic region (Barisal, Chittagong, Dhaka, Khulna, Rajshahi and Sylhet) is used in analysis. Since the women under study are of various age groups, age is taken as a control variable. The response variable is sensitive to change according as the family size is even or odd. Hence, odd family size is taken in analysis as one of the most important explaining variable.

The criteria for inclusion and exclusion of independent variables in the logistic regression model were set to be .05 and .10 respectively. The inference regarding statistical significance was based on chi-square statistics. Table-5.8 gives the different estimates of the unknown parameters corresponding to the selected independent variables. The table includes the estimate of the logistic regression coefficients ( $\beta$ ) corresponding to the independent variables and relative odds ratio calculated for each category of the categorical variables. The category with the relative odds of 1.000 represents the reference category for that variable. If the odds ratio is greater than unity, the probability of occurrence of number of sons exceeds number of daughters is higher than that of occurrence of number of sons less than or equal number of daughters. The p value is used to identify the significant effects to assess the relative importance of the selected variables in the logistic regression method.

Table-5.8 shows the odds ratios of having more sons than daughters as explained by different variables in model and the respective significance level. The odds of having more sons than daughters among the women who are exposed to media is twelve percent less than the odds for non-exposed women. Result indicates that, increased exposure to media can enhance to

reduce the effect of son preference. In case of work status, the odds of having more sons than daughters among women who are working with reference to no working is reduced by fourteen percent. Based on the proportion of sons in ideal family size, Bhat (2003) has concluded that the influence of education, urbanization and exposure to mass media reduces son preference in Northern India. The effect of work status and mass media in Bangladesh is found similar. The odd that the number of sons exceeds the number of daughters is 2.393 times more likely among the women having even family size with reference to women having odd family size. When the number of living children increases, the odds of having more sons than daughters declines significantly. This finding supports the fact that, couples stop at smaller family size if they achieve more sons and continue childbearing if they achieve daughters only so that when they stop childbearing after having sons, they will have more daughters than sons. Results based on odd family size and number of living children support couples' stopping behavior after having more sons than daughters. No significant odds ratios are found for other variables under study.

**Table 5.8 Explaining son preference by selected Socio-demographic variables: result of Logistic regression analysis (Number of sons exceeds number of daughters is assigned one and zero otherwise)**

Explanatory variables	Estimated $\beta$	St. error of $\beta$	Sig.	Odds ratio
<b>Exposure to media</b>				
(No)				1.00
Yes	-.124*	.084	.003	.884
<b>Region</b>				
(Barisal)				1.00
Chittagong	.174	.079	.077	1.190
Dhaka	.070	.076	.357	1.073
Khulna	-.012	.083	.886	.988
Rajshahi	.079	.076	.297	1.083
Sylhet	-.026	.093	.783	.975

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<b>Educational level</b>				
( No education)				1.00
Primary	-.034	.053	.516	.966
Secondary	-.058	.065	.375	.944
Higher	-.152	.111	.170	.859
<b>Working status</b>				
(No)				1.00
Yes	-.148*	.052	.004	.863
<b>Religion</b>				
(Muslim)				1.00
Non-Muslim	.003	.068	.969	1.003
<b>Place of residence</b>				
(Urban)				1.00
Rural	-.004	.050	.931	.996
<b>Wealth index</b>				
(Lowest )				1.00
Middle	.092	.051	.069	1.097
Highest	-.069	.069	.321	.934
<b>Odd family size</b>				
(No)				1.00
Yes	.873**	.050	.000	2.393
<b>Number of living children</b>				
(One)				1.00
Two or three	-.179*	.065	.006	.836
Four or more	-.347**	.086	.000	.707
<b>Current age</b>	.016**	.003	.000	1.016
<b>Constant</b>	-1.159**	.129	.000	.314
<b>2log likelihood=-13002.655</b>				
<b>Number of cases=10022</b>				

Note: Reference category is in the parenthesis

Level of significance: \*p<.01    \*\*p<.0001

### 5.7 Sex preference and contraceptive use

Previous analysis clearly shows the existence of sex preference in Bangladesh. To study the effect of sex preference on contraceptive use, only modern methods of contraception are considered. The modern methods here refer to any one of the Male/Female Sterilization, IUD, Pill, Injectables, Norplant and Condom, as classified in BDHS, 2004. It is assumed that the

contraceptive use rate is the highest among those couples who are most satisfied with the sex composition of living children. The effect is analyzed by taking currently married women having one up to five living children. Table-5.9 shows that there is wide variation in the contraceptives use rate for different sex composition of living children. There is difference of around five percentage points in the contraceptive use rate among couples having only one son and only one daughter. For couples with two children, contraceptive use rate is increased by around eight percent if the couples have both sons, than if the couples have both daughters. Among the couples with three living children, 60.6 percent use modern methods if they have all sons whereas, only 34.8 percent use modern methods if they have all daughters. The use rate is found to be the lowest if the couples have daughters only and the highest if the couples have sons only (except for two, four and five living children). Contraceptive use rates for all sex compositions are negatively affected by sex preference. The difference between the contraceptive use rate in absence of sex preference and the observed use rate is shown in the last column. Couples having three daughters only are most adversely affected among all sex compositions in using contraceptive methods (difference of almost 26 percentage points). Couples having all three sons or two sons and a daughter are almost equally likely to use contraception. Moreover, contraceptive use rate is the highest for these particular sex compositions. This indicates that couples are more satisfied with three living children but with at least two sons. The total use rate of contraception is 46.2 percent and the rate in absence of sex preference is 54.93 percent. There is difference of almost nine percentage points (observed use rate is 16% less than expected use rate in absence of sex preference). These findings show a substantial effect of sex preference on modern contraceptive use.

**Table 5.9 Effect of sex preference on use of modern methods of contraception among currently married women aged 15-49 who had up to five children, by number of living children and number of sons.**

Number of living children	Number of sons	Number of women	Percent using modern method(observed)	Percent using method(no son preference)	Difference
1	0	446	44.6	49.2	4.6
	1	521	49.2	49.2	0.0
2	0	241	47.6	58.4	10.8
	1	779	58.4	58.4	0.0
	2	373	55.2	58.4	3.2
3	0	86	34.8	60.6	25.8
	1	403	53.8	60.6	6.8
	2	477	60.2	60.6	0.4
	3	134	60.6	60.6	0.0
4	0	33	33.5	56.2	22.7
	1	168	56.2	56.2	0.0
	2	263	51.2	56.2	5.0
	3	156	52.0	56.2	4.2
	4	46	54.8	56.2	1.4
5	0	10	29.4	50.8	21.4
	1	64	44.8	50.8	6.0
	2	102	45.3	50.8	5.5
	3	96	46.2	50.8	4.6
	4	62	50.8	50.8	0.0
	5	8	38.1	50.8	12.7
<b>Total</b>		<b>4468</b>	<b>46.2</b>	<b>54.93</b>	<b>8.73</b>

Note: Use rates in absence of sex preference are taken as the maximum of the rates among different sex compositions for given number of living children.

### 5.8 Sex preference and total fertility

The effect of sex preference on total fertility is estimated by taking respondents who do not want any more children. Parity progression ratios of women with at least one child and wanting no more children are calculated by using information of their parity. This ordinary parity progression ratio includes the sex preference also. Parity progression ratios in absence of sex preference are calculated.

Table-5.10 shows the parity progression ratios and the total fertility in presence and in absence of son preference. The observed parity progression ratios are greater than those in absence of son preference (except for parity five, six and nine). The values of parity progression ratios at higher parity have smaller contribution on total fertility. However, the difference between observed parity progression ratio and the parity progression ratio in absence of son preference, at lower parities, has greater impact on total fertility. It can therefore be said that, the effect of son preference on fertility is most prominent at third parity (difference of 0.061). Parity progression ratios up to ninth parity are used to calculate TFR. Total fertility rate of 4.16 is estimated for the group considered in analysis. Total fertility rate in absence of son preference is estimated to be 3.86, a bit lower than the observed value. If there would be no son preference, the TFR would fall by 0.3 (7.21% than the observed value). Comparing these results with Indian studies, the influence of sex preference on fertility in Bangladesh is comparatively smaller (Mutharayappa et al, 1997). But, compared with the similar study based on 1996 BFS data of the country, no substantial change in the inhibiting effect of son preference on fertility is observed (Leone et al., 2003). This indicates a substantive influence of son preference on total fertility.

**Table 5.10 Estimation of the effect of son preference on parity progression ratios and on total fertility (among ever-married women having at least one Child and do not want further children)**

Parity	Parity progression ratio		Difference
	With son preference	With no son preference	
1	0.9161	0.8923	0.0238
2	0.8206	0.7652	0.0554
3	0.7478	0.6868	0.061
4	0.6730	0.6245	0.0485
5	0.6420	0.6544	-0.0124
6	0.6092	0.6164	-0.0072
7	0.5826	0.5609	0.0217
8	0.5495	0.5465	0.003
9	0.5	0.5714	-0.0714
<b>TFR</b>	<b>4.16</b>	<b>3.86</b>	<b>0.3</b>

## CHAPTER SIX

### SUMMARY AND CONCLUSION

The goal of the study is to analyze the patterns and determinants of fertility intention and sex preferences in Bangladesh and examine their effects on reproductive behaviour in Bangladesh using the data from the 2004 Bangladesh Demographic and Health Survey (BDHS). The results of the study may have important implications for policy makers and planners, Government officials and Non-government agencies.

The analysis shows that about six in ten (59 percent) currently married women age 10-49 either do not want another child or are sterilized. Thirty-seven percent of women want to have a child at some time in the future; 13 percent want one within two years, 21 percent would prefer to wait two or more years, and 3 percent could not decide on the timing. Thus, the vast majority of married women want either to space their next birth or to limit childbearing altogether. However, a decreasing trend has observed in the desire for more children with the increase in the number of living children. It reached to 89 percent among women with one living children and then declines to 31 percent among women with 2 living children and 2 percent among those with six or more children. The proportion of women who want no more children increases with the number of living children.

The majority of the respondents (81%) planning for further issues within two years are not using any contraception. However, a considerable number of the respondents (60%) decided to wait for two or more years are found to use contraception. Furthermore, only 30% of the respondents planning for a delay of an uncertain period are taking protection. In contrast 67.3% of the respondents decided not to take any more children, are using contraception. Respondents with declared infecund were found not to use any contraception. Respondent's education shows positive relationship with the desire for more children. The study reveals that there is some regional difference for having more children. Desire for more children is highest in the Chittagong division and it is lowest in Rajshahi and Khulna division with two living children. The desire for more children of urban women is lower at almost all levels of current family size than rural women. However, a slight difference is observed in the desire for more children by wealth index. Work status of women influences significantly the desire for more children. It is evident from our analysis that working women desire for more children is less than those who do not work at all levels of living children.

Overall respondents with no exposure to mass media wanted fewer issues than the other group. In comparison with contraceptive non users, Contraceptive users had lower level of interest for further issue in all cases. Religion of respondents has influence on having additional children. The desire for more children at all parity above zero is higher for the Muslim than non-Muslim.

A declining trend of fertility desire, caused by an increased consciousness, was observed. Effects of socio-demographic factors on desiring for more children have been examined by logistic regression analysis. Age of the respondents, wealth index, working status, religion, place of residence, no. of living children and living son, contraceptive use and exposure to mass media

have negative impact on desiring for more children. But educations have positive effect on wanting for more children.

We found that out of 100 percent responses 80 percent were consistent on ideal family size and desire family size. Women's education shows a positive effect on consistent responses, that is, as the level of education increases, the degree of consistency increases.. It was found that respondents in Barisal (88.5 percent) and Rajshahi (88.2 percent) have the highest level of consistent responses, whereas respondents of Dhaka (85.7 percent) and Sylhet (85.2 percent) have the lowest. Rural respondents (66.7 percent) have relatively higher level of consistent responses than urban (86.7percent). Women's with lowest wealth index i.e. poorest group (85.1 percent) shows the lowest level of consistent responses in comparison with women's with the highest wealth index (86.8). However, women's of middle index have the highest amount of consistent responses (88.4 percent).

Respondents with no work status have higher level of consistent responses (88.5 percent) in comparison with respondents with work status(81percent). Respondents who have exposure to mass media had comparatively higher level of consistent responses(87.3 percent) than those without any exposure to mass media (85.7 percent). A considerable degree of difference in the inconsistency, more than double, is marked between the response of contraceptive users (8.1percent) and non users (19.4 percent). Non-Muslim respondents (88.1 percent) show a slightly higher proportion of consistency in their response in comparison with Muslims (86.7 percent).

It is evidenced that birth order, mother's age at birth have negative relation with planned status of birth. We observed the positive relation between birth orders, mother's age at birth and unplanned birth status. A comparison of the total wanted fertility rate and the actual fertility rate suggests the potential demographic impact of the elimination of unwanted births. The gap between

the wanted and observed total fertility rates is slightly larger among rural than among urban women. There is also a larger gap between the wanted and observed fertility rates for women with no education or only primary education and for those with secondary education. It is interesting to note that if women's fertility desires could be met, the total fertility rate in all divisions except Chittagong and Sylhet would be below the replacement level of 2.1 children per woman.

The overall average CEB and desired family size are 2.94 and 2.41 respectively. Average desired family size is lower than average number of CEB. Mean number of CEB and desired family size increase with the increase in age of the respondents but again mean number of CEB and desired family size decrease with the increase in age at marriage, level of respondent's education, level of husband education and wealth index. Both mean number of CEB and desired family size is greater in rural areas than urban areas. In case of region, we observe that the highest of both mean number of CEB and desired family size in Sylhet division, whereas in Khulna division it is the lowest. Female headed families are comparatively higher than male headed families in mean number of CEB. It is reversed for desired family size. We revealed that Muslim respondents had more both mean number of CEB and desired family size than non-Muslim. Contraceptive user had greater mean number of CEB than non-contraceptive user. It is reversed for mean desired family size.

By examining the effects of different socio-economic factors on desired family size with regard to multiple regression analysis, we observe that .khulna, rajshahi, respondent's education in single years, electricity, religion, work status and husband's education in single years have negative impact on desired family size and place of residence and chittagong, sylhet have positive effect on desired family size.

We observed that 18 percent respondents showed no preference for son and the rest 82 percent expressed their preference for son of which 57 percent expect one ideal number of son, 24 percent want two ideal number of sons, one percent desire three ideal number of sons and only 0.2 percents like four or more ideal number of sons.

It revealed that for most Bangladeshi women, the ideal family consists of two Children – one boy and one girl. For example, nearly two-third (65 percent) of the respondents reported their ideal family size as 2, of which 64 percent said 1 son and 1 daughter as their preferred sex composition. Even those who preferred for 4 or more children (about 11 percent), most of them (9 percent) preferred equal number of son and daughter.

By examining region, we saw the strong son preference in Khula and Rajshahi division because of low parities. The same pattern of son preference exists at higher parities also. The analysis of desire for next child by number of living children revealed that, the average number of sons among the women who do not desire next child is significantly greater than the same among women who desire next child. In the analysis of sex composition of living children and wantedness status of next child, the sex composition of two sons and one daughter is found to be most favourable. These findings support the higher preference of sons, with some indication of preference for daughters.

Mean ideal number of son increased with the age of respondents. Adolescents had the lowest mean ideal number of son (0.92), whereas the most elderly group of 40-49 had the highest mean ideal number of son (1.26). Age at marriage also shows differential effect on mean ideal number of sons. The lower the age at marriage, the higher the preferred mean ideal number of sons. Women's education shows strong negative effect on mean ideal number of sons i.e. mean ideal number of son decreased with the increase in the level of

education. Husband's education also shows similar pattern of relationship with the sex preference. Urban respondents had comparatively lower mean ideal number of son (1.02) than rural respondents (1.11). It was found Sylhet (1.26) and Chittagong (1.19) had the highest mean ideal number of son and Rajshahi (1.01), Khulna (1.02) had the lowest mean ideal number of son. Women with the lowest wealth i.e. poorest group had the highest mean ideal number of son (1.16), compared with the women with the highest amount of wealth (0.97). In comparison with non- Muslims (1.07), Muslim had higher mean ideal number of son (1.09). Contraceptive users had slightly lower number of mean ideal number of sons than that of non users (1.08 vs. 1.10). Women who have exposure to mass media have smaller mean ideal number of son (1.02) than the ones who did not have any exposure to mass media (1.24).

Figure 5.2 shows the overall trends in mean ideal number of sons since 1993 to 2004. Over the period, sex preference appears to decline gradually. For instance, the mean ideal number of son decline from 1.36 in 1993 to 1.09 in 2004.

Among the socio-demographic variables included in the analysis, work status, exposure to media and number of living children clearly show negative impact on son preference.

This study shows considerable rate of influence of son preference on fertility in Bangladesh. If son preference is totally eliminated, total fertility would decline by seven percent and modern contraceptives use rate would enhance by sixteen percent. Son preference is also one of the barriers against modern contraceptive use. Fertility transition in Bangladesh is always retarded to some extent by constant force of son preference. The effect of sex preference is found to be most prominent at third parity. But, after further decline in fertility, this may shift to the lower parities.

## Policy implications

From the findings we may suggest some action plan that may be helpful in implementing future fertility reduction and also help the policy makers to set up future family planning program. Some policy implications emerging from this research are discussed below:

Respondent's education as being the most important factor influencing reproductive desire patterns, effective steps should be taken to promote it through initiative by the government, non-government and private sector.

Women working outside home have influence on fertility intention and sex preference. They are always sincere and aware of contraceptive methods can have better communication with their husbands and can participate in family decision making and family formation. Program of action has been undertaken to increase employment of women and at the same time empowerment of women. The expansion of family job opportunities may reduce fertility intention and sex preference in Bangladesh.

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Communication between husband and wife regarding family planning reduces fertility intention and sex preference. So proper steps should be taken to communicate with partner regarding family planning.

Mass media should be more effective in broadcasting and publishing fertility and other family planning advertisements and news coverage regularly to make people conscious about reproductive decision –making.

Child survival is vital factor to inspire respondents to adopt small family norm. In this context the immunization program has a very important to play.

It seems that two-child policy of the government is making a little effect on the larger portion of the population. Government can think of introducing various benefits to those who have two children. In this context, the policies followed by other countries can be taken as example. This can influence in the intention of fertility.

Women desiring to delay their pregnancies need more effective contraception. This can help them to prevent unwanted births more than before.

A society exhibiting norms of gender preference causes bias in the unwantedness of birth. So a substantial change should have to be made in the way of looking about daughters. Mass media, government, NGO's could take necessary steps for implementing this.

Late marriage can have a significant demographic effect on the wantedness of women. Education and employment have influence on the age at marriage. More educated women and men get married at the later ages but specially women who are not engaged in education get married earlier and give more births.

The most important policy implication from the findings of this study is that future fertility would decline if son preference were diminished at the earlier stages of family formation. Short-term and narrowly defined population control activities may be ineffective in reducing the influence of son preference on fertility. Nevertheless, an integrated effort is essential to decrease gender inequality as well as to increase the status of women, which potentially could hold to decrease fertility rate at national level.

Finally, it should not be forgotten that demographic change is dependent not only on the factors explored in the present study, but also on many factors of

social change not covered here. Border intersectional approaches encouraging greater economic activity, decision making, power and freedom of movement for women, will undoubtedly accelerate the developments which are crucial to the future well being in Bangladesh.

## BIBLIOGRAPHY

- Arnold, F. 1985. "Measuring the effect of sex preference on fertility: The case of Korea," *Demography* 22(2): 280-288.
- Arnold F, Choe MK and Roy TK. 1998. "Son preference, the family-building process and child mortality in India", *Population Studies*, 52(3): 301-315.
- Arnold F. 1987. "The effect of sex preference on fertility and family planning: empirical evidence", *Population Bulletin of the United Nations*, No. 23-24, pp. 44-55.
- , 1997 "Gender preference for children," *Demographic and Health Surveys, Comparative Studies*. No. 23. Calverton, Maryland, USA: Macro International Inc.
- Arnold, Fred .1992. "Sex preference and its demographic and health implications", *International Family Planning Perspectives*, 18(3).
- Arnold, F. and Eddie C. Y. Kuo. 1984. "The Value of Daughters and Sons: A Comparative Study of Gender Preferences of Parents." *Journal of Comparative Family Studies* 15(2): 299-318.
- Arnold, F. and L. Zhaoxiang. 1986. "Sex Preference, Fertility, and Family Planning in China". *Population and Development Review* 12(2):221-46.
- Arokiasamy, P. 2002 "Gender preference, contraceptive use and fertility in India: Regional and developmental influences," *International Journal of Population Geography* 8: 49-67.
- Ali, Syed Nubashir, 1989. "Does Son Preference Matter?", *Journal of Biosocial Science*, 21(4) :399-408.

- Akbar, J., Phillips, J.F., and Becker, S. 1992. "Contraceptive use in Matlab, Bangladesh: The role of gender preferences," *Studies in family planning*, Vol. 23, Pp. 229-242.
- Ahmed, N. R. 1981. "Family Size and Sex Preferences among Women in Bangladesh." *Studies in Family Planning* 12(3): 100-109.
- Amin R., and Mariam, A.G. 1987 "Son preference in Bangladesh: An emerging barrier to fertility regulation", *Journal of Biosocial Science*, Vol. 19, Pp. 221-228.
- Abeykoon, A.T.P.L. 1994. "Is sex preference an obstacle to reaching replacement fertility in Sri Lanka?". Paper presented at International Symposium on Issues Related to Sex Preference for Children in the Rapidly Changing Demographic Dynamics in Asia, Seoul, Republic of Korea, November.
- A.Al-Sabir, S.N.Mitra, S.Islam, S.K.Bhadra, A.Cross and S.Kumar 2004 Bangladesh Demographic and Health Survey 2004 , NIPORT, Dhaka, Bangladesh; Mitra Associates, Dhaka, Bangladesh.
- Rural Demography* XVI(1&2):43-56.  
Ben-Porath, Y., and F. Welch. 1976. "Do Sex Preferences Really Matter?" *Quarterly Journal of Economics* 90: 285-307.
- Bulatao, R. A. 1981. "Values and Disvalues of Children in Successive Childbearing Decisions." *Demography* 18(1): 1-25.
- Bairagi R. 1993. "Is gender preference an obstacle to the success of family planning programs in rural Bangladesh"? *Proceedings of the XXIInd General Conference of the International Union for the Scientific Study of Population*, Vol. 1, pp. 121-134

- Bairagi R. 1996. Gender preference for children and its effects on contraceptive use, abortion and fertility in Matlab, Bangladesh. International Centre for Diarrhoeal Disease Research, Bangladesh, PO Box 128, Dhaka 1000, Bangladesh.
- Bairagi, R. and A. K. Bhattacharya. 1989. "Parental Sex Preference and its Effects on Fertility Intention and Contraceptive Use in Calcutta".
- Bairagi, Radheshyam and Ray L. Langsten 1986. "Sex preference for children and its implications for fertility in rural Bangladesh", *Studies in Family Planning*, 17(6) :302-307.
- Bhatia, J.C.1978. "Ideal number and sex preference of children in India", *Journal of Family Welfare*, Vol. 24, Pp. 3-16.
- Bankole, A. 1995. "Desired Fertility Behavior Among the Yoruba of Nigeria: A Study of Couple Preferences and Subsequent Fertility." *Population Studies*, 49(2) :317-328.
- Basu AM.1989. Is discrimination in food really necessary for explaining sex differentials in childhood mortality? *Population studies*, 48:193-210.
- Bongaarts, J.1990. The Measurement of Wanted Fertility. Working paper Series of Population Council No.10, Population Council, New York.
- Bardhan, P.1974 "On Life and Death Questions." *Economic and Political Weekly* (special number):1293-304.
- 1982. "Little Girls and Death India." *Economic and Political Weekly*(special number):1448-50.
- Bhuiya, A.1989. "Factors affecting child survival in Matlab, Bangladesh", Ph.D. dissertation, Australian National University.
- Bhat, P. N. Mari and A. J. Francis Xavier. 2003. "Fertility decline and gender bias in Northern India," *Demography* 40(4): 637-657.

- Bhat V.N. 2001. Urbanization and Western Ghats ecology: a study of deforestation and urban development in Karnataka. In: Urbanisation at the new millennium: the Indian perspective, edited by K. Radhakrishna Murty. Visakhapatnam, India, Andhra University, Department of Sociology, :81-94.
- Coombs, C. H., L. C. Coombs and G. M. McClelland. 1975. "Preference Scales for Numbers and Sex of Children." *Population Studies* 29: 275-298.
- Coombs, L. C. and Te-Hsiung Sun. 1978. "Family Composition Preferences in a Developing Culture: The Case of Taiwan 1973." *Population Studies* 32: 43-64.
- Coombs 1979. "Reproductive goals and achieved fertility: a fifteen-year perspective" *Demography* 16(4):523-534.
- Coombs 1977. "Preferences for sex of children among U.S. couples" *Family Planning Perspectives* 9(6):259-265.
- Coombs, L.C.1979. "Prospective fertility and underlying preferences: A longitudinal study in Taiwan", *Population Studies* 33:447-455.
- Chen LC., Huq E. and D'Souza S. 1981. Sex Bias in the Family Allocation of Food and Health Care in Rural Bangladesh. *Population and Development Review*, 7:55-70.
- Cleland, J., Verrall, J., and Vaessen, M.1983. "Preference for the sex of children and their influence on reproductive behaviour," Netherlands: World Fertility Survey Comparative Studies, No. 27.
- Chowdhury, A.I., Radheshyam Bairagi and Michael A. Koinig 1993. "Effects of family sex composition on fertility preference and behaviour in rural Bangladesh", *Journal of Biosocial Science*, 25(4).

- Chowdhury, A.L. and Aziz, K.M.1974. Demographic studies in rural Bangladesh, May 1973 April 1974. Dhaka, Bangladesh, International Centre for Diarrhoeal Disease Research, November 1982. 22 p. International Centre for Diarrhoeal Disease Research Bangladesh. Working Paper; No. 30
- Chowdhury, M.K. 1994. "Mother's education and effect of son preference on fertility in Matlab, Bangladesh" *Population Research and Policy Review* 13:257-273.
- Chowdhury MK and Bairagi R.1990. Sex preference and fertility in Bangladesh, *Population and Development Review*, 16(4):749-757
- Clark, S. 2000. "Son preference and sex composition of children: Evidence from India," *Demography* 37(1): 95-108.
- Cain, M. 1984. *Women's Status and Fertility in Developing Countries: Son Preference and Economic Security, Population and Development Series No. 7*, (Washington, D.C.: World Bank).
- Cain, M. KHANAM, S.R. & NAHAR,S.1979. Class, Patriarchy, and Women's work in Bangladesh. *Popul. Dev.Rev.*5,405.
- Chang, M.C., Freedman, R., and Sun, T.H.1981. Trends in fertility, family size preferences, and family planning practices: Taiwan, 1961 - 80, *Studies in Family Planning*, Vol. 12, Pp. 211-228.
- Caldwell et al.1989. Is marriage delay a multiphasic response to pressures for fertility decline? The decline of Sri Lanka. *JOURNAL OF MARRIAGE AND THE FAMILY*. May;51(2):337-51.
- De Tray, D. 1984. "Son preference in Pakistan: an analysis of intentions verses behaviour" *Research in Population Economics* 5:185-200.
- De Tray,D.N.1980. "Son preference in Pakistan: An analysis of intentions versus behaviour", 5:185-200.

- Dalla Zuanna, G. and T. Leone. 2001. "A gender preference measure: The sex ratio at last Birth," *Genus* LVII: 33-56.
- D' Souza, S., and L.C. Chen 1980. "Sex differentials in mortality in a rural area of Bangladesh", *Population and Development Review* 6:257-270.
- Das, N. 1984. "Sex Preference Pattern and Its Stability in India: 1970-80." *Demography India* 13(1 and 2):108-19.
- Goh, T.N. 1981. "Quantitative analysis of some decision rules for family planning in an oriental society" *Interfaces* 11(2):31-37.
- Goodkind, Daniel 1994. "Sex preference for children in Vietnam". Paper presented at the International Symposium on Issues Related to Sex Preference for Children in the Rapidly Changing Demographic Dynamics in Asia, Seoul, Republic of Korea, 21-24 November .
- Ghosh, S. 2002. "Sex preference in relation to fertility, family planning, and gender differential in infant child mortality in some selected Indian states," M. Phil. Dissertation, IIPS, Mumbai.
- Guerin, N. 1983. Recent progress in immunization. *Assignment Children*. 1983; No. 61/62:123-42.
- Hussain, R., F.F. Fikree and H.W. Berendes 2000. "The role of son preference in reproductive behaviour in Pakistan" *Bulletin of the World Health Organization* 78(3):379-388.
- Hosmer, D. W. and S. Lemeshow, 1989. *Applied Logistic Regression*, New York: John Wiley and Sons.
- Islam et al. 2003. Quality characteristics of field workers and contraceptive use dynamics: lessons from Matlab, Bangladesh. *Asia-Pacific Population Journal*. Mar; 18(1):43-62.

- Jejeebhoy, S.J. and Kulkarni, S. 1989. "Reproductive motivation: A comparison of wives and husbands in M. India" *Studies in Family Planning*, 20:264-272.
- Johansson, S. and O. Nygren. 1991. "The Missing Girls of China: A New Demographic Account." *Population and Development Review* 17:35-51.
- Karim, Mehtab S. 1994. "Sex preference in Pakistan". Paper presented at the International Symposium on Issues Related to Sex Preference for Children in the Rapidly Changing Demographic Dynamics in Asia, Seoul, Republic of Korea, November.
- Khan, M.A. and I. Sirageldin 1977. "Son preference and the demand for additional children in Pakistan", *Demography*, 14(4).
- Kabir, M., R. Amin, A.U. Ahmed and J. Chowdhury 1994. "Factor affecting desired family size in Bangladesh" *Journal of Biosocial Science* 26:369-375.
- Kent, M.M. & Larson, A. 1982. Family Size preferences: Evidence from the World Fertility Surveys. Reports on the World Fertility Survey No.4. Population Reference Bureau, Washington, DC.
- Koenig, M.A., J.F. Phillips, R. Simmons, and M.A. Khan 1987. 'Trends in Family Size Preferences and Contraceptive Use in Matlab, Bangladesh', *Studies in Family Planning*, 18(3):117-127.
- Karki, Yagya. 1988. "Sex preference and the Value of Sons and Daughters in Nepal." *Studies in Family Planning* 19(3): 169-178.
- Kynch, J. and A. Sen. 1983. "Indian Women: Well-Being and Survival." *Cambridge Journal of Economics* 7:363-80.
- Kamnuansilpa, P. and Aphichat Chamra Trithirong 1982. "A new Decade of Fertility and Family Planning in Thailand: 1981 Contraceptive Prevalence Survey" Bangkok Research Centre, National Institute of Development Administration, Bangkok.

- Knodel, J. e. and Prachubomoh, V. 1976. "Preferences for sex of child in Thailand: A comparison of husbands wives' Attitudes", *Studies in Family Planning* 7:137-143.
- Knodel, John, A. Chamrathirong and N. Debavalya 1987. *Thailand's Reproductive Revolution: Rapid Fertility Decline in a Third-World Setting* (Madison, University of Wisconsin Press).
- Knodel, G. & Pitaktepsombati, A. 1973. Thailand: fertility and family planning among rural and urban women. *Stud Fam. Plann.* 4,229.
- Khan, MA and Khanum, PA. 2000. Influence of son preference on contraceptive use in Bangladesh. *Asia-Pacific Population Journal*, September.
- Kulkarni, S. and M. Kim Choe. 1998. "Wanted and Unwanted Fertility in Selected States of India," *NFHS Subject Report*. No. 6. Mumbai, IIPS; Honolulu, U. S. A, East West Center Program on Population.
- Lee, Sung Yong. 1993. "Sex Preference, The Values of Sons and Fertility: The Case of Korea." Paper presented at the annual meetings of American Sociological Association, Miami, Florida.
- Leone, T., Z. Mathews, and G. Dalla Zuanna. 2003. . "Impacts and determinants of sex Preference in Nepal," *International Family Planning Perspectives* 29(2): 69-75.
- Larson, U., W. Chung and M. D. Gupta. 1998. "Fertility and son preference in Korea," *Population Studies* 52(3): 317-325.
- Lightbourne, R., Z. 1985. Desired number of births for fertility decline in 40 countries, *International Family Planning Perspective*, 2, Pp.34-39.
- Lahiri, B. 1984. "Demand for Sons Among Indian Couples by Rural-Urban Settlement Size." *Demography India* 13(1 and 2): 120-32.

- Malhi,O.1993. "Impact of women's education on sex preferences, values and aspirations for children: Evidence Haryana", *Man and Development*, XV:46-62.
- Madigan,F.C. 1957. "Are sex mortality differentials biologically caused?" *Mailbank Memorial fund Quarterly* 35:202-223.
- Mukerji, S.1997. Demographic scenario of Uttar Pradesh and new population policy. In: *Population and development in Uttar Pradesh*, edited by Kamla Gupta and Arvind Pandey. New Delhi, India, B.R. Publishing Corporation, :275-90.
- Mannan,M.A. 1988. "Preference for son, desire for additional children and contraceptive use in Bangladesh" *Bangladesh Development Studies* 16(3):31-57.
- Muhuri PK., and Preston S. 1991. Effect of family composition on mortality differentials by sex among children in Matlab, Bangladesh. *Population and Development Review*, 17: 415-434.
- Miller, B.1981. *The Endangered Sex:Neglect of Female Children in Rural North India*.Ithaca: Cornell University Press. Ministry of Health, His Majesty's Government, New ERA, and ORC Macro. 2002. *Nepal Demographic and Health Survey, 2001*. Kathmandu Nepal.
- Mutharayappa, R., M. Choe, F.Arnold, and T. K. Roy. 1997. "Son preference and its effects on fertility," *NFHS Subject Report*. Number 3.
- Niraula, Bhanu B. and S. Philip Morgan. 1995. "Son and daughter preferences in Benighat, Nepal: Implication for fertility transition," *Social Biology* 42(3-4): 256-273.
- N. Gulati, S.C. 1987 "Some reflections on son preference and its influence on additional desire fertility", *Demography India*, 16(2):207-220 .

- Nath, D.C. and K.C. Land. 1994. "Sex Preference and Third Birth Intervals in a Traditional Indian Society." *Journal of Biosocial Science* 26:377-88.
- Nag, M.1991. "Sex preference in Bangladesh,India and Pakistan and its effect on fertility Demography India 20:163-185.
- Nair, P.M.1996. "Imbalance of Sex Ratio of Children in India." Demography India 25:177-87.
- Nag, M. 1992. "Sex preference in Bangladesh, India, Pakistan and its effect on fertility," Demography India, Vol. 20, Pp. 163- 185.
- Operations Research Group(ORG). 1983. Family Planning Practices in India: Second All-India Survey. Baroda:Operations Research Group.
- Park,C.B.1978. The fourth Korean child:the effect of son preference on subsequent fertility journal of Biosocial Science 10:95-106.
- ,1983. Preference for sons, family size and sex ratio:an empirical study in Korea. Demography 20:333-352.
- Park, Chai Bin, and Nam-Hoon Cho. 1995. "Consequences of Son Preference in a Low-Fertility Society: Imbalance of the Sex Ratio at Birth in Korea. *Population and Development Review* 21 (1): 59-84.
- Pong, S.L.1994. "Sex preference and fertility in peninsular Malaysia," Studies in Family Planning, Vol. 25, Pp. 315-332.

- PRACHUABMOH,V.1967. Factors affecting desire or lack of desire for additional progeny in rural Thailand. In: Sociological Contributions of Family Planning Research, pp.364-409.Edited by D.Bogue. University of Chicago, Chicago.
- Pullum, T. W.1980. "Separating age, period and cohort effects in white us fertility 1920-70", Social Science Research 9:225-244.
- Pathak KB; Kanitkar T; Roy TK. 1993. National Family Health Survey. POPULATION RESEARCH ABSTRACT, Jun; 4(1):3-12.
- Prichett, Lant H. 1994. "Desired fertility and the impact of population policies", Population and Development Review 20(1):1-54.
- Parsuraman, S., T. K. Roy, D. Radha Devi, B. Paswan, P. Arokiasamy, and S. Unisa. 1999. *The Role of Education in Shaping Fertility in India: Evidences From NFHS*. Mumbai: Himalaya Publishing House, pp. 64-89.
- Rahman M and DaVanzo J.1993. Gender preference and birth spacing in Matlab. Bangladesh. *Demography*, 30(3):315-332.
- Repetto, R. G. 1972 "Son preference and Fertility Behavior in Developing Countries." *Studies in Family Planning* 70(4): 70-76.
- Rahman, M., J. Akbar, J. Phillips, and S. Becker. 1992 "Contraceptive Use in Matlab, Bangladesh: The Role of Gender Preference." *Studies in Family Planning* 23(4):229-42.
- Raju, K.N.M. and T.N. Bhat. 1995. "Sex Composition of Living Children Against Socio- Economic Variables while Accepting Family Planning Methods." *Demography India* 24(1):87-99.

- Sheps MC, 1963. Effects on family size and sex ratio of preferences regarding the sex of children, *Population Studies*, 17(1):66-72.
- Shettles, L.B. 1958. "Biological sex differences with special reference to disease, resistance and longevity," *Journal of Obstetrics and Gynecology of the British Empire* 65:288-295.
- Stash, S. 1996. "Ideal-family-size and sex-composition preferences among wives and husbands in Nepal," *Studies on Family Planning* 27(2): 107-118.
- Shryock, H.S. and Siegel, J.S. 1993. Readings in population research methodology. Volume 4. Nuptiality, migration, household, and family research, edited by Donald J. Bogue, Eduardo E. Arriaga, Douglas L. Anderton, George W. Rumsey. Chicago, Illinois, Social Development Center, :14-33 - 14-34.
- STINNER, W.F. & Murder, P.D. 1975. Sons, daughters or both? An analysis of family sex composition preferences in the Philippines. *Demography*, 12, 67.
- Sen, A. and S. Sengupta. 1983. "Malnutrition of Rural Indian Children and the Sex Biase." *Economic and Political Weekly* 18(19-21):855-64.
- United Nations 1995. *Population and Development: Programme of Action Adopted at the International Conference on Population and Development, Cairo, 5-13 September 1994*, vol. 1 (ST/ESA/SER.A/149).
- U.N. 1985. "Women's employment and fertility: A comparative analysis of World Fertility Survey Results for 38 counties", New York.
- Vaessen et al. 1983. "Preferences for the sex of children and their influence on reproductive behaviour" *World Fertility Survey Comparative Studies No.27* (Voorburg, Netherlands, International Statistical Institute).

- Waldron, I.1983. "Sex Differences in Human Mortality: The Role of Genetic Factors." *Social Science and Medicine* 17:321-33.
- ,1987. "Patterns and Causes of Excess Female Mortality Among Children in Developing Countries." *World Health Statistical Quarterly* 40:194-210.
- WILLIAMSON, N.E.1978. Boys and girls? Parents' preferences and sex control. *Popul.Bull.*33,1.
- Westoff, C.F.1991. "Reproductive Preference: A comparative view, Columbia, Maryland Institute for Resource Development", *Demographic and Health Survey Comparative Studies No.3*, p-27. *Planning developing counties. International Family Planning Perspective* 7(4):126-136.