

PATTERNS AND DETERMINANTS OF SEX PREFERENCE IN BANGLADESH AND ITS EFFECT ON REPRODUCTIVE BEHAVIOUR

MD. ISLAM UDDIN^{*1}, DHANESWAR CHANDRO SARKAR² and MD. NURUL ISLAM¹

¹Department of Statistics, University of Rajshahi, Rajshahi-6205, Bangladesh,

²Department of Statistics, Mawlana Bhashani Science and Technology University, Tangail-1902, Bangladesh

Abstract

This paper examines the levels and patterns of sex preference in Bangladesh by using sex composition of living children and desire for more children. The data for the study comes from Bangladesh Demographic and Health Survey (BDHS), 2011. The results indicate that for most Bangladeshi women, the ideal family consists of two children, one boy and one girl with a balance of sex composition. Slightly more than three fourth (76.3 percent) of the respondents reported their ideal family size as 2, of which 63.3 percent said 1 son and 1 daughter as their preferred sex composition. However, as the ideal family size increases, the proportion of women desiring son than daughter also increases, indicating an overall son preference in Bangladesh. 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. Women's age, education and mass media exposure appeared as the significant determinants for sex preference. For a particular parity, the contraceptive prevalence rate increases with the increase in the number of living sons irrespective of the number of living daughters. Among the currently married women with two living children, contraceptive prevalence rate is higher among those who have 1son or all the two are sons indicating that many women in Bangladesh want to ensure that they have had not only one or more sons, but also at least one daughter. Observed modern contraceptive use rate is found to be 17 percent less than the expected rate in absence of sex preference. If sex preference is eliminated, total fertility rate is estimated to decline by two hundred seventy percent.

Keywords: Sex preference, parity, contraceptive prevalence and sex composition

Introduction

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

* Corresponding author: islam_uddin7@yahoo.com

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). 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. 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).

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). This present paper examines the pattern and determinants of sex preference and its effect on fertility desire and contraceptive use in Bangladesh. The findings may have important policy implications for further reduction of fertility in Bangladesh.

Materials and Methods

The data for the present study are taken from Bangladesh Demographic and Health Survey (BDHS, 2011), 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 considered a multistage cluster sample design to draw a nationally representative sample of 17,842 ever-married women of reproductive age 13-49. To measure the extent of son preference, women's expressed desire for the ideal number of sons has been used. The study examined the sex preference of currently married women and their fertility desire by using sex composition of living children and desire for more children. Multiple classification analysis was done to identify the factors affecting sex preference. The study evaluated the effect of son preference on contraceptive use and fertility by sex composition of living children and parity progression ratio respectively.

Results and Discussion

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 1 shows the ideal number of sons according to respondents' response. The results indicate that 19 percent respondents showed no preference for son and the rest 81 percent expressed their preference for son of which 67 percent expect one, 14 percent want two, Half percent desire three and only 0.1 percent like four or more ideal number of sons.

Table 1. Percentage of currently married women for ideal number of sons

Ideal number of sons	Percentage of cases
.00	18.7
1.00	67.0
2.00	13.7
3.00	0.5
4+	0.1
Total	100.0
Number of cases	16491

The table 2 presents the distribution of women by their ideal family size composition. The results indicate that for most Bangladeshi women, expect their family consists of two children – one boy and one girl. For instance, slightly more than three-fourth (76.3 percent) of the respondents reported their ideal family size as 2, of which 63.3 percent said 1 son and 1 daughter as their preferred sex composition. Even those who preferred for 4 or more children (about 6.1 percent), most of them (5.5 percent) preferred equal number of son and daughter.

Table 2. Percentage distribution of women by ideal family size Composition

No. and Sex of Ideal family size	Percent	No. of Women
1 Child	5.2	913
1 daughter	0.5	81
1 son	1.4	238
Either sex	3.4	594
2 Children	76.3	13403
1 son, 1 daughter	63.3	11295
2 sons	0.4	78
2 daughters	0.1	23
Either sex	11.4	2008
3 Children	12.4	2174
2 son, 1 daughter	8.5	1484
1 son, 2 daughter	1.1	190
3 son	0.1	12
3 daughter	0.0	1
Either sex	2.8	487
4 or more	6.1	1073
Equal no. of each sex	5.5	967
More son than daughter	0.5	85
More daughter than son	0.1	20
Either sex	0.0	1
Total	100.0	17563

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. Desire 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 desire status of next child is analyzed 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 3 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 1.58 sons on an average but those couples who want more children are having only 1.28 sons on an average. The desire status of next child is further analyzed by taking number of living sons. From Table 4, it is evident that, the desire status of next child is significantly associated with the number of living sons for all values of total number of living children(except one and five or more living children). The association is strongest for two children. In this group also, the most preferable sex composition can be inferred to be one son and one daughter (90% do not want more child). This result is in the same line with the result obtained from other studies (Niraula, 1995). Higher percentage of women having one son reported that they do not want to go for next child except one and four living children. This characteristic is found true for all possible sex compositions of living children without one and four living children. It indicates only the preference for one son.

Around double 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 (20% for two sons; 10% for three sons). Their intention to go for next child may be for daughter. This indicates the similar 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 (38.1% for two children; and 12.5% 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 3. Desire 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	0.55	809	0.52	2852	2.833*
Two	1.12	3870	.89	840	76.938**
Three	1.58	3003	1.28	255	30.859**
Four	2.03	1640	1.58	124	22.537**
Five or more	2.73	1410	2.79	110	.24
Total	1.54	10732	0.53	4181	4221.168**

Label of significance: *P<0.1 **P<0.00001

Table 4. Desire 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 son	Want next child (Percentage)		χ^2	Contingency Coefficient	Total number of women
		No	Yes			
One	0	20.9	79.1			1739
	1	23.2	76.8			1922
Total	22.1	77.9	2.88*	.028*	3661	
Two	0	61.9	38.1			883
	1	90.0	10.0			2590
	2	80.1	19.9			1237
Total	82.2	17.8	359.42**	0.27**	4710	
Three	0	75.7	24.3			317
	1	94.5	5.5			1212
	2	94.5	5.5			1332
	3	90.5	9.5			398
Total	92.2	7.8	139.81**	0.20**	3259	
Four	0	78.7	21.3			122
	1	91.3	8.7			438
	2	95.2	4.8			643
	3+	94.8	5.2			561
Total	93.0	7.0	47.66**	0.16**	1764	
Five or more	0	87.5	12.5			64
	1	93.8	6.2			224
	2	93.7	6.3			410
	3+	92.6	7.4			821
Total	92.8	7.2	3.52	0.05	1519	
Grand total	65.0	35.0	4510.30**	0.46**	14913	

Label of significance: *P<0.1 **P<0.00001

Contingency coefficient: It measures the amount of association between want for further child and do not want next child for different sex composition of living children.

Differentials of sex preference

Differentials of sex preference were analyzed in terms of preference for ideal number of sons considering women's socio-demographic characteristic as the explanatory variables. Mean ideal number of son is increased with the increase in age of respondents. Adolescents had the lowest mean ideal number of son (0.78), whereas the most elderly group of 40-49 had the highest mean ideal number of son (1.11). Age at marriage also shows differential effect on mean ideal number of sons.

Table 5. Mean ideal number of sons for currently married women by socio demographic characteristics, Bangladesh 2011

Socio-demographic characteristics	Mean Ideal number of Son	Number of currently married women
Overall	0.96	16491
Respondent's age		
<20	.78	1918
20-29	.89	6629
30-39	1.04	4564
40-49	1.11	3380
Age at marriage		
<15	1.01	6600
15-19	.95	8470
20-24	.83	1170
25+	.71	251
Respondent's education		
No education	1.11	4314
Primary	1.01	4958
Secondary	.87	5958
Higher	.74	1262
Husband's education		
No education	1.06	4935
Primary	.98	4537
Secondary	.92	4709
Higher	.82	2303
Place of residence		
Urban	.88	4276
Rural	.99	12216
Region		
Barisal	.95	942
Chittagong	1.05	2971
Dhaka	.94	5323
Khulna	.88	1988
Rajshahi	.96	2516
Rangpur	.94	1914
Sylhet	1.07	837
Wealth index		
Lowest	1.02	6170
Middle	.99	3334
Highest	.90	6980
Religion		
Muslim	.97	14830
Non-muslim	.89	1653
Contraceptive use		
No	.96	6345
Yes	.96	10138
Exposure to mass media		
No	1.07	5660
Yes	.91	10831

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. 1.11) sons, while women with higher level of education preferred less than one (0.74) sons. Husband's education also shows similar pattern of relationship with the sex preference. Urban respondents had comparatively lower mean ideal number of son (0.88) than rural respondents (0.99).

So far region is concerned it was found that Sylhet (1.07) and Chittagong (1.05) had the highest mean ideal number of son and Khulna (0.88) 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 (1.02), compared with the women with the highest amount of wealth (0.90). In comparison with non-Muslims (0.89), Muslim had higher mean ideal number of son (0.97). Contraceptive users and non-users had same mean ideal number of sons (0.96 vs. 0.96). Women who had exposure to mass media had smaller mean ideal number of son (0.91) than the ones who did not have any exposure to mass media (1.07).

Determinants of sex preference

A variety of socio-economic and cultural factors may affect the son preference. To examine the differential patterns of mean number of desired sons, the well-known Multiple Classification Analysis (MCA) is employed (Table 6). The results indicate that women's age, education, husband's education, region of residence and exposure to mass media are important determinants of son preference. Among the selected factors, the respondent's age is the most influential factor determining the son preference (Eta = 0.181 and Beta = 0.151). Son preference increases with the increase in age. Younger women desired lower number of sons than their older counter part. The next most influential factors affecting son preference is the exposure to mass media (Eta = 0.121 and Beta = 0.105). Women having exposure to mass media are less likely to desire lower number of sons than the women having no mass media exposure. Region of residence is an influential factors for son preference (Eta = 0.093 and Beta = 0.095). Women living in the Khulna division have lower desired number of sons, while women living in the Sylhet and Chittagong have higher desired number of sons. Woman's education also play important role in determining the number of desired sons (Eta = 0.183 and Beta = 0.108). On an average, higher the level of education, lower the desired number of sons. Although husband's education show strong negative effect on son preference, it becomes less important when other socio-economic factors are controlled.

Table 6. Mean ideal number of sons by selected socio-economic characteristics analyzed by Multiple Classification Analysis (MCA)

Explanatory variables	Predicted mean ideal sons		Correlation ratio	
	Unadjusted	Adjusted for factors	Eta	Beta (Adjusted for factors)
Age				
<20	.77	.79		
20-29	.89	.90	0.181	0.151
30-39	1.03	1.03		
40-49	1.10	1.07		
Women's Education				
No education	1.09	1.03		
Primary	1.01	.99	0.183	0.108
Secondary	.87	.92		
Higher	.74	.80		
Husband's Education				
No education	1.05	.98		
Primary	.98	.97		
Secondary	.92	.96		
Higher	.82	.92	0.126	0.031
Place of residence				
Urban	.88	.91		
Rural	.99	.98		
Region of residence				
Barisal	.95	.93		
Chittagong	1.05	1.06		
Dhaka	.94	.95	0.077	0.051
Khulna	.89	.89		
Rajshahi	.96	.95		
Rangpur	.94	.92		
Sylhet	1.07	1.06		
Wealth index				
Lowest	1.01	.98	0.093	0.095
Middle	.99	.99		
Highest	.90	.93		
Contraceptive use				
No	.96	.95		
Yes	.96	.97	0.085	0.043
Media				
No	1.06	1.05	0.005	0.018
Yes	.91	.92	0.121	0.105
Grand mean= 0.96 R=0.491, R²=0.079				

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, 2011. 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 7 shows that there is wide variation in the contraceptives use rate for different sex composition of living children.

Table 7. 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	966	48.8	55.4	6.6
	1	1117	52.7	58.2	5.5
2	0	558	55.3	63.5	7.8
	1	1889	64.4	72.6	8.2
	2	900	63.4	72.6	9.2
3	0	195	51.3	61.4	10.1
	1	874	58.9	71.9	13.0
	2	967	62.0	72.5	10.5
	3	261	58.3	65.6	7.3
4	0	86	56.1	69.9	13.8
	1	276	45.7	62.7	17.0
	2	440	57.1	68.1	11.0
	3	293	51.4	64.9	13.5
	4	73	50.9	65.2	14.3
5	0	30	57.4	63.8	6.4
	1	99	56.1	66.9	10.8
	2	172	48.3	63.9	15.6
	3	127	43.0	57.5	14.5
	4	79	42.5	58.9	16.4
	5	11	36.4	50.0	13.6
Total		9413	56.62	65.99	9.37

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.

There is difference of 1.1 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 1.4 percent if the couples have both sons, than if the couples have both

daughters. Among the couples with three living children, 58.3 percent use modern methods if they have all sons whereas, only 51.3 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 four and five living children). Contraceptive use rates 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 2.8 percentage points). Couples having only son, one son and one daughter, two sons and a daughter, two sons and two daughters, two sons and three daughters are highest to use contraception. Moreover, modern contraceptive use rate is the highest for these particular sex compositions. This indicates that couples are more satisfied with two living children but with at least one son. The total use rate of contraception is 56.62 percent and the rate in absence of sex preference is 65.99 percent. There is difference of 9.4 percentage points (observed use rate is 9.4% less than expected use rate in absence of sex preference). These findings show a substantial effect of sex preference on modern contraceptive use.

Sex preference and fertility

The parity progression ratios and the total fertility irrespective of son preference is shown in Table 8, Parity progression ratios of women with at least one child and want no more children are calculated by using information of their parity.

Table 8. 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	0.32	0.93	-0.61
2	0.37	0.61	-0.24
3	0.48	0.50	-0.02
4	0.47	0.46	0.01
5	0.46	0.45	0.01
6	0.45	0.37	0.08
7	0.57	0.47	0.1
8	0.23	0.29	-0.06
TFR	0.544	2.01	-1.466

By using PPR=1, for both cases *TFR and **TFR(e) are calculated as follows:

$$*TFR = PPR_0 + PPR_0 * PPR_1 + PPR_0 * PPR_1 * PPR_2 + \dots + PPR_0 * PPR_1 * \dots * PPR_9$$

$$*TFR(e) = PPR_0(e) + PPR_0(e) * PPR_1(e) + PPR_0(e) * PPR_1(e) * PPR_2(e) + \dots + PPR_0(e) * PPR_1(e) * \dots * PPR_9(e)$$

At higher parity, the values of parity progression ratios have relatively low 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. To calculate TFR, parity progression ratios up to eighth parity are used. Total fertility rate is estimated 0.54 for the no preference group. Whereas total fertility rate in absence of son preference is estimated to be 2.01 which is three times greater than the observed value. If there would be no son preference, the TFR would be reduced by -1.47 (270% than the observed value).

Conclusion

The study findings indicate that there is a strong desire for more sons than daughters among the couples in Bangladesh. However, most Bangladeshi couples desire a balance of sex composition with an ideal family size of two children — one boy and one girl. Slightly more than three-fourth (76.3 percent) of the respondents reported their ideal family size as 2, of which 63.3 percent said 1 son and 1 daughter as their preferred sex composition. However, as the ideal family size increases, the proportion of women desiring son than daughter also increases, indicating an overall son preference in Bangladesh. 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. 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 desire status of next child, the sex composition of two sons and one daughter is found to be most favorable. Mean ideal number of son increased with the age of respondents. Adolescents had the lowest mean ideal number of son (0.78), whereas the most elderly group of 40-49 had the highest mean ideal number of son (1.11). Women's education shows strong negative effect on mean ideal number of sons. Husband's education also shows similar pattern of relationship with the sex preference. Urban respondents had comparatively lower mean ideal number of son (0.88) than rural respondents (0.99). It was found that Sylhet (1.07) and Chittagong (1.05) had the highest mean ideal number of son and Khulna (0.88), both Dhaka and Rangpur (0.94) 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 (1.02), compared with the women with the highest amount of wealth (0.90). Contraceptive users and non-users had same mean ideal number of sons (0.96 vs. 0.96). Women who have exposure to mass media have smaller mean ideal number of son (0.91) than the respondents who did not have any exposure to mass media (1.07).

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 two hundred seventy percent and modern contraceptives use rate would enhance by 17 percent. Son preference is also one of the barriers against modern contraceptive use. The demand

for a family size of 2.2 children, which has been in existence for quite some time, may be crystallizing. However, the observed fertility level, which is 2.59 children per woman, is still higher than the desired number of children. This gap is mainly due to the fact that the desired fertility is strongly conditional on the demand for at least one living son and one living daughter. For further reduction in fertility and to achieve the replacement level of fertility, strong policy measures are needed to weaken the son preference among the couples.

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